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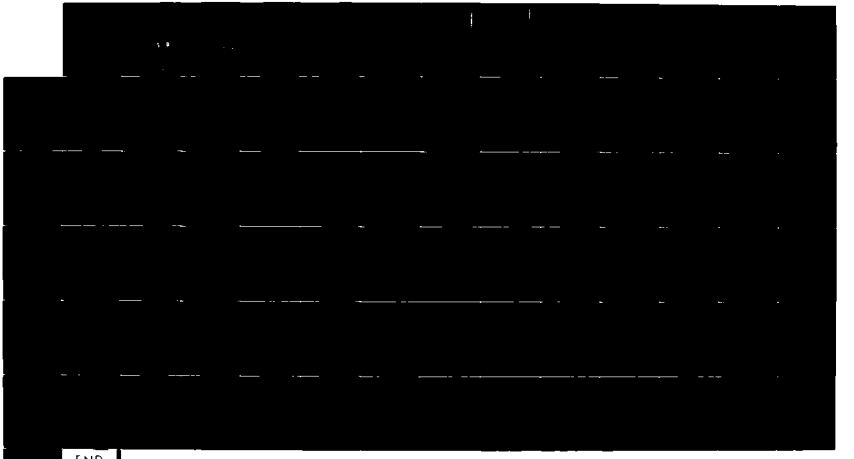

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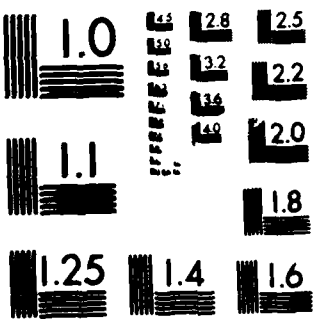

TECHNICAL REPORT
SOFTWARE COST ESTIMATION STUDY
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CER MODEL PLANNING REPORT
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Dr. Aaron N. Silver
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MARTIN MARIETTA

(11)

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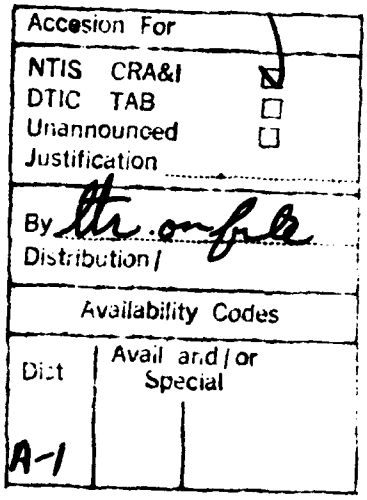
APRIL, 1987

Prepared for

OFFICE OF NAVAL RESEARCH (ONR)
NAVAL CENTER FOR COST ANALYSIS
DEPARTMENT OF THE NAVY
WASHINGTON, D.C. 20350-1100

Under Contract N00014-85-C-0892
Delivery Order No. MCR-87-511
CDRL Item No. A006
CER MODEL PLANNING REPORT



by

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Publication R-0420-87-1

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CER MODEL PLANNING REPORT

LIST OF FIGURES AND TABLES

I. INTRODUCTION

This "CER MODEL PLANNING REPORT," CDRL Item No. A006, contains the results of the "Cost Estimation Study," contract N00014-85-C-0892, conducted for the Naval Center for Cost Analysis (under the auspices of the Office of Naval Research) during the period of performance 12 January 1987 through 04 April 1987. The effort described in this report focuses upon the following three areas addressed in Task III: (The statement and objectives of TASK III are given in Figure 1.-1, while the schedule is shown in Figure 1.-2).)

(1) The collection of current AVIONICS data and subsequent derivation of preliminary CER (Cost Estimating Relationship) prototypes for ultimately calibrating the SASET model parameters. This includes the generation of SASET productivity factors and complexity multipliers; and

(2) The categorization and organization of functional sizing data for formulating a suitable AVIONICS data base. This AVIONICS data base will be utilized in the SASET model in generating cost and schedule outputs; and

(3) The calibration of the SASET model AVIONICS data base to ensure verification and validation of all SASET model parameters. In this respect, a total review of all SASET model requirements has begun. The intent is to update the "SASET REQUIREMENTS" document within the next quarterly reporting period.

In addition, substantive effort is currently being devoted to the computerization of the SASET model on an IBM PC. In this respect, most of the input screens have already been constructed, the data base for Ground Support software has been implemented, and some of the output Tables and Graphics are also operational. Preliminary tests are also being conducted to integrate all these computer modules. Most of the computer computations are in the check out phase, and considerable effort is being made to produce a "user friendly", and easily understood computer package.

STUDY TASKS AND OBJECTIVES

TASK III: DEVELOP COST ESTIMATING RELATIONSHIPS (CERs) BETWEEN FUNCTIONS/PRODUCTS, SOFTWARE COSTS, AND ACQUISITION PHASES.

OBJECTIVES:

TO FORMULATE A FULLY INTEGRATED METHODOLOGY AND DEVELOP APPROPRIATE ANALYSIS TECHNIQUES FOR THE GENERATION OF COST ESTIMATING RELATIONSHIPS (CERS).

TO PROVIDE CRITERIA, PERFORMANCE MEASURES, AND PROCEDURES FOR ALL SOFTWARE COST ESTIMATING MODELS.

TO FURNISH PRELIMINARY CER PROTOTYPES FOR CONDUCTING FUNCTIONAL SIZING, COSTING, AND SCHEDULING.

TASK IV: DEVELOP METHODS AND PROCEDURES THAT WILL RELATE FUNCTION/PRODUCT ACQUISITION SOFTWARE COST ESTIMATES TO TOTAL LIFE CYCLE COST.

OBJECTIVES:

TO PROVIDE VISIBILITY WITH RESPECT TO SOFTWARE COST ELEMENTS ON A FUNCTION/PRODUCT BASIS.

TO EXPEDITIOUSLY INTEGRATE SOFTWARE COST ESTIMATES INTO THE TOTAL LIFE CYCLE DEVELOPMENT PROCESS.

FIGURE 1.-1 TASK III & IV OBJECTIVES

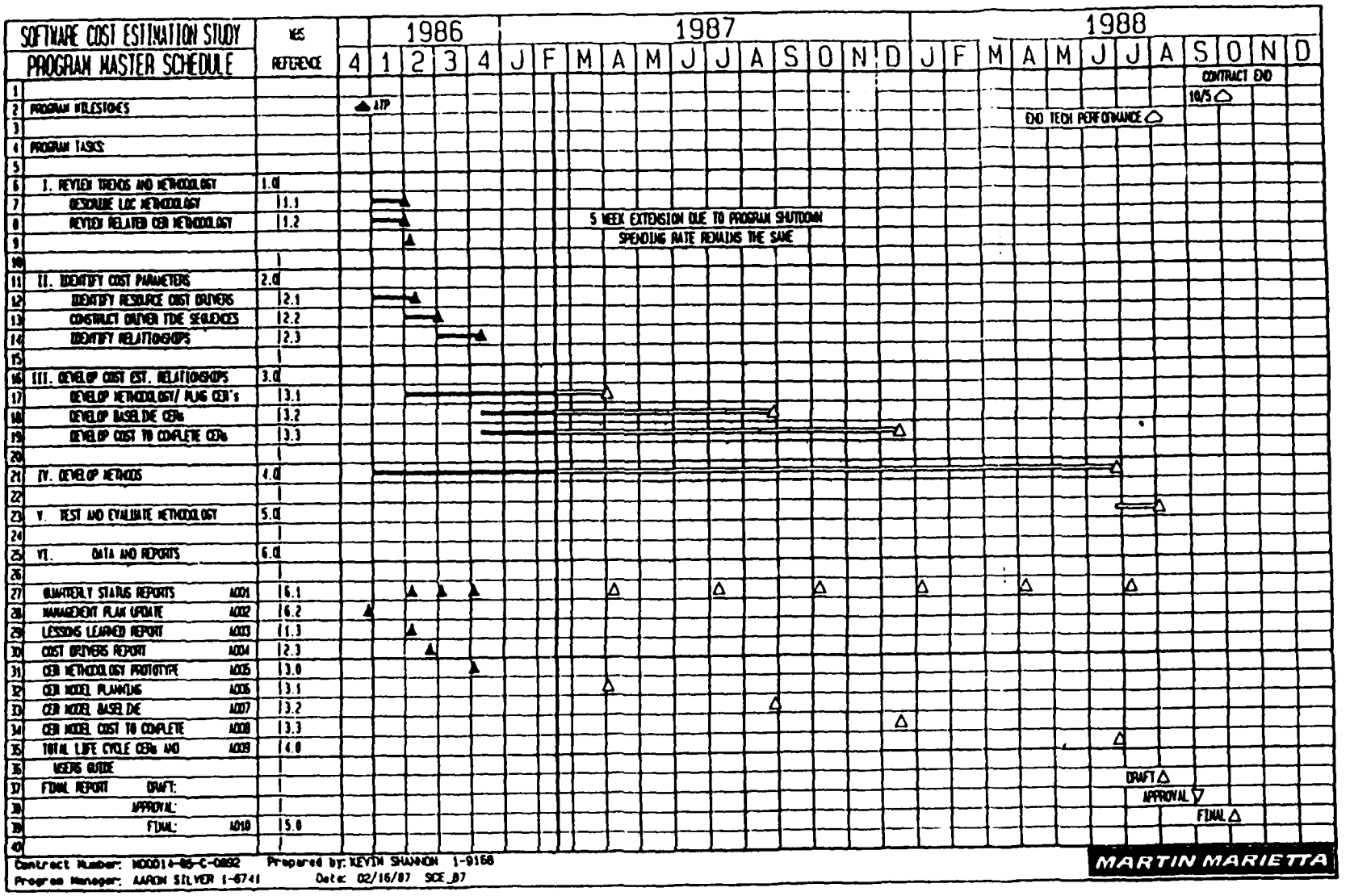


FIGURE 1.-2 SOFTWARE COST ESTIMATION STUDY SCHEDULE

II. Preliminary CER Prototype for AVIONICS Data

2.0 Introduction

Figure 2.-1 illustrates, in summary block diagram form the basic elements of the CER development process. The emphasis is to obtain data which can be easily grouped into homogeneous sub-sets at the lowest possible level in the software Work Breakdown Structure (WBS) hierarchy. This process inherently yields accurate CER's. Thus, the respective classes of software, i.e., manned, unmanned, avionics, and ground, across all software types such as Systems, Applications, and Support, produce a logical initial breakdown of the given data base. These data are further decomposed onto the development life cycle phases, i.e., requirements, design, code, checkout, etc. The result is a data base which accurately reflects cost accrual by class of cost, time phases, organization, and type of cost.

The flow for determining the actual CER is illustrated in Figure 2.-2. Steps 1 and 2 form the basis of the analysis. The utilization of logical sub-sets and grouping of the data into separate classes results in removing outliers and enhances the statistical reliability of the observations.

Steps 3, 4, and 5 are pre-regression type analyses to condition and further screen the data for significant groupings, so that homogeneity is yet enhanced. Step 3 includes statistical correlation, while steps 4 and 5 identify the minimal set of variables which are both necessary and sufficient to yield suitable cost factors, in terms of "complexity" measures that are correlated with cost. Included in these steps are data normalization and data conditioning procedures and protocols.

Step 6 determines the functional form of the regression analysis, in terms of the best statistical fit to the observed data. Here, the residuals are examined, and an "F" statistic computed. Also, additional analyses may be performed to examine the respective components of the analysis of variance, so that linear, quadratic, and other statistically significant higher order effects may be taken into account.

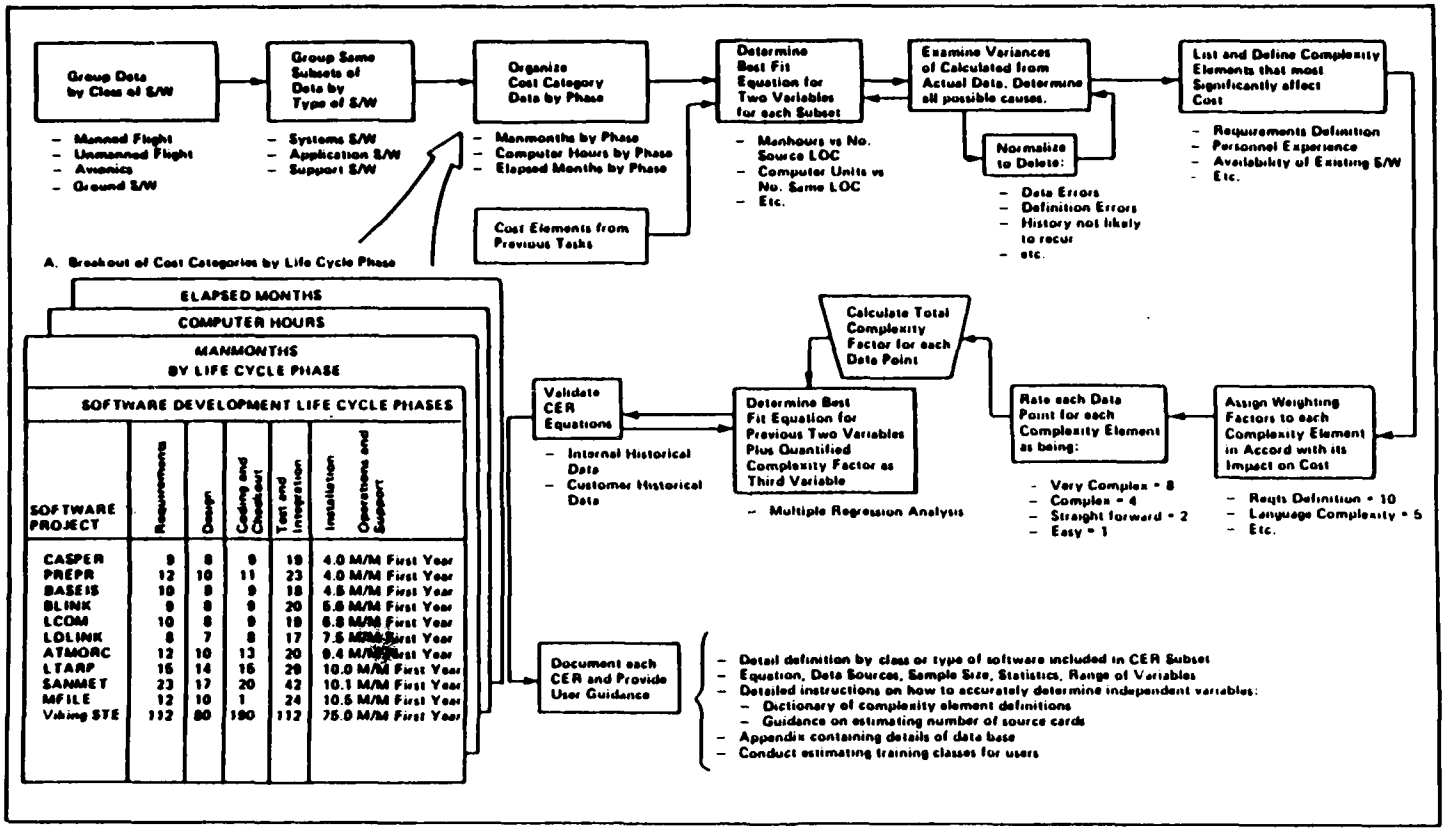


Figure 2.-1 CER DEVELOPMENT METHODOLOGY

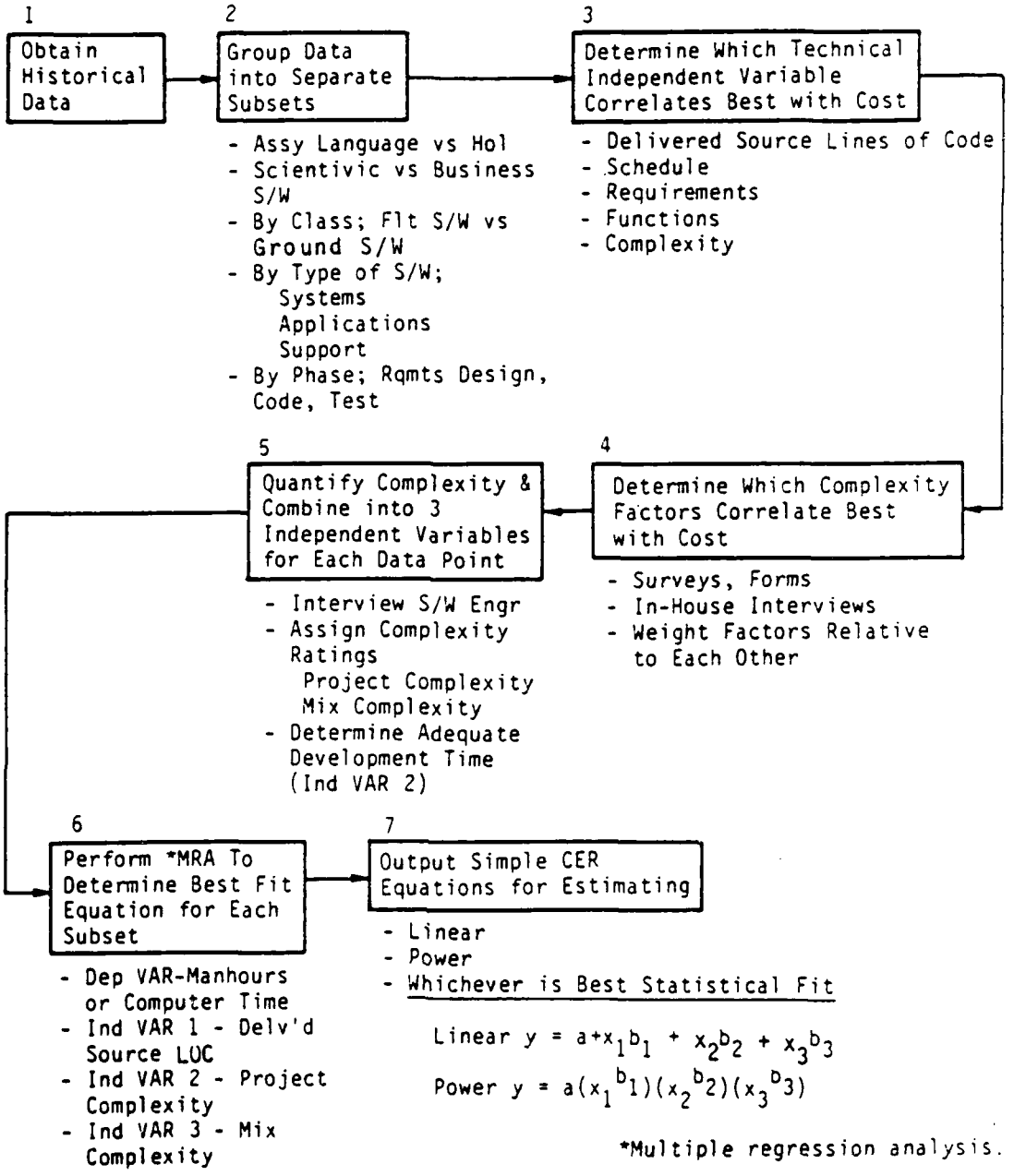


Figure 2.-2 FLOW FOR DEVELOPING CER'S

Table 2.-1 summarizes some of the basic raw data collected in deriving preliminary CER's for AVIONICS. Basically, the data are organized by type of software, i.e., Systems, Applications, and Support, and further delineated into either assembly or HOL (Higher Order Language). In addition, these data pertain to the Software Engineering functions only, and do not include the Systems Engineering or Test organizations and their related activities. Also, the respective life cycle phases addressed were requirements, design, code, and test. (These data do not include the planning or maintenance phases.)

Figure 2.-3 illustrates the plot of these seven (7) AVIONICS data points for a log-log scale. In addition, the circled points labeled F-111, and AWACS represent previous programs which were similar in nature to the current data obtained. The generic form of the fitted equation is a straight line given by:

$$\log(\text{HOURS}) = \log(\text{CONSTANT}) + (\text{EXPONENT})\log(\text{HOL EQ}).$$

Obviously, the (EXPONENT) coefficient represents the slope of the line, which is also the productivity factor. For this sample plot, the value obtained is approximately 3.9 Hours/LOC. This now represents a sample value for use in the SASET model. Also, the AVIONICS functions associated with this data base will be included in the SASET model. These data will conform to the indexing system developed in the following section. (Section 3.2, Functional Sizing of AVIONICS Data).

It is anticipated that additional effort will be devoted to refine the AVIONICS data base. For example, the LANTIRN program contains pertinent cost, sizing, and schedule data concerning the individual CPCI's developed, down to the module level.

Table 2.-1 Summary of AVIONICS S/W Programs

(1) PAE (Precision Attack Enhancement)
AVIONICS Support S/W
17,000 HOL Source Lines of Code
Language - Jovial. New HOL equivalents: 17,000
33,864 hours for S/W Development

(2) Laser Spot Tracker (on board F-18)
AVIONICS Applications S/W
9,082 Assembly Language Source Lines of Code
Language - Assembly. New HOL equivalents, 2,331
16,268 hours for S/W Development

(3) TAD's (Laser System on Apache Helicopter)
AVIONICS Applications S/W
21,000 Assembly Language Source Lines of Code
Language - Assembly. New HOL equivalents: 6,167
25,232 hours for S/W Development.

(4) ASSAULT BREAKER
AVIONICS Applications S/W
12,200 Assembly Language Source Lines of Code
Language - Assembly. New HOL equivalents: 4,067
15,438 hours for S/W Development.

(5) Single Seat Aircraft (night attack fighter)
AVIONICS Applications S/W
8,000 Assembly Language Source Lines of Code
Language - Assembly. New HOL equivalents: 2,667
10,641 hours for S/W Development.

(6) Operational Flight Program (close air support)
AVIONICS Applications S/W
14,100 Assembly Language Source Lines of Code
Language - Assembly. New HOL equivalents: 4,700
19,721 hours for S/W Development.

(7) LANTIRN
AVIONICS Applications S/W
310,000 Source Lines of Code (Assembly/Fortran)
265,428 new HOL equivalents.
614,200 hours for S/W Development.

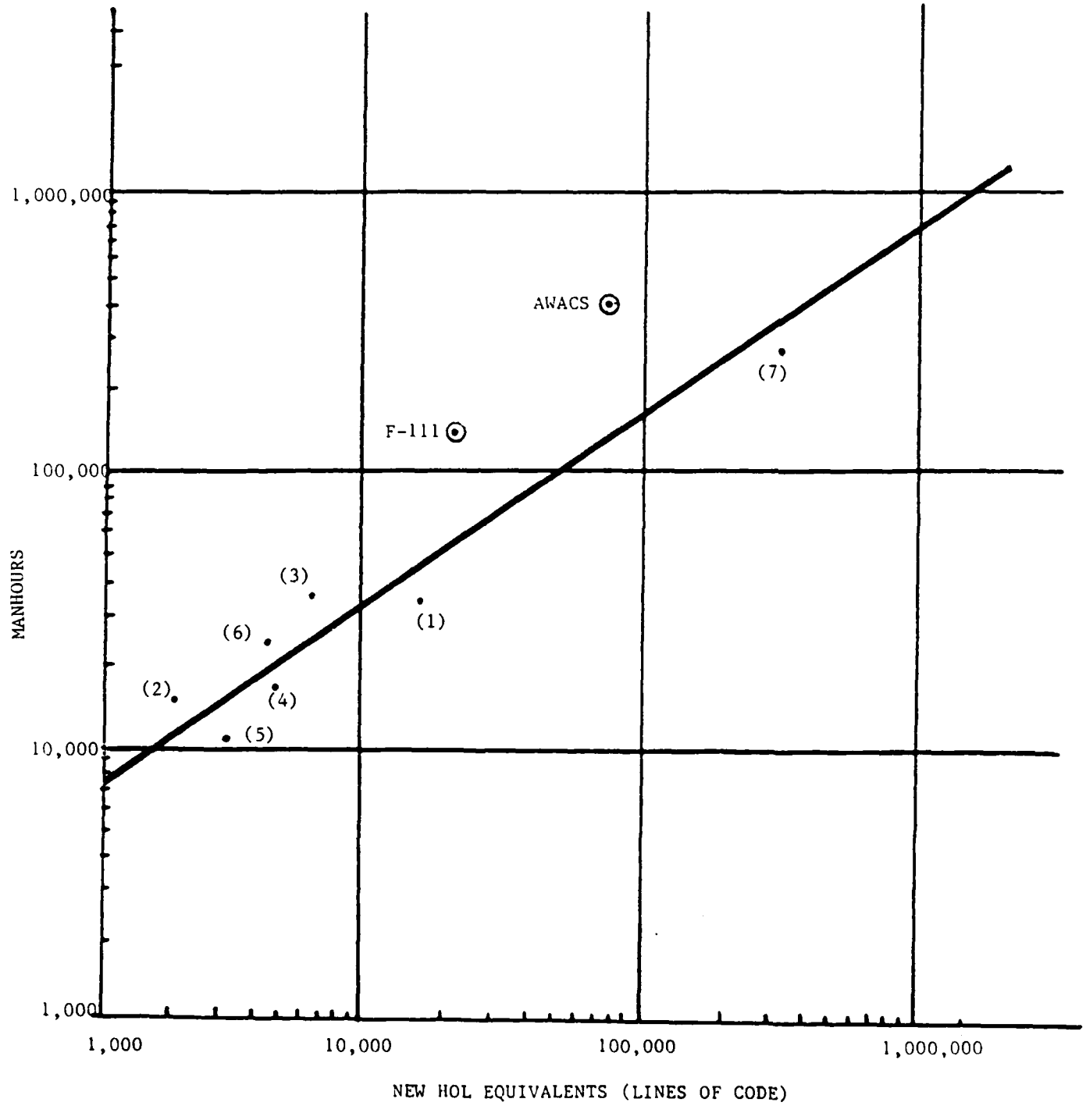


Figure 2.-3 PLOT OF NEW HOL EQUIVALENTS VS. MANHOURS

III. Functional Sizing of AVIONICS Data

Table 3.-2 illustrates the overall scheme for catagorizing software functional data. This specific classification hierarchy was obtained from the most recent (January, 1987) ASPS Cost Reporting Document (Section VIII, Software Reporting Requirements). Although AVIONICS is delineated as a special category, it should be noted that other given platforms, such as space-borne or shipboard, do indeed have similar functions described by index elements 2.1 to 2.6. Also, the "Off-Line Training" (comprising index elements 15.1 to 15.4) has been reconfigured into two (2) Data Reduction items (Category A and B) to reflect activities involving moderate and extensive processing requirements, in either real-time or off-line modes. This functional list is utilized as a template for subsequently structuring the SASET model data base. In some instances an addititional level of indexing was used to describe lower level functions. For example, when representing the functional activities for "Processing Software" under "Modeling", the SASET data base hierarchy will index to two lower levels, i.e., type of "modeling" and the respective parameters associated with the "modeling" functions. Thus, Rapid Prototyping (type of modeling) has sub-categories of requirements, design, graphics, etc, as indenture levels.

Some Normalized Functional Sizing Statistics for AVIONICS are shown in Table 3.-3. These data were originally obtained from ARINC Research Corporation, technical report "Software Sizing and Cost Estimation", (July, 1985) prepared for the Office of the Controller (NCDS), Department of the Navy, Washington, D.C. under Contract N00600-87-D-4045, Delivery Order No. 0003, CDRL Item No. A0002. However, these respective values have been modified using both updated data and the algorithms formulated in the SASET model to reflect nominal baseline numbers. The resultant processed values are used as input to the SASET models. The SASET modifications reflect an increase of approximately 73%. This factor takes into account both the skewness of the distribution used in the SASET sizing algorithms, and the range of three (3) sigma values covered by these functions.

TABLE 3.-2

Software Functions

Category	Index	Function
Displays	1.1	Avionics
	1.2	Command, Control, & Communications
	1.3	Other
Avionics	2.1	Mission Planning
	2.2	Navigation
	2.3	Aircraft Steering Flight Control
	2.4	Sighting, Designation & Location Determination
	2.5	Weapon Delivery
	2.6	Electronic Countermeasures
	2.7	Other
Command, Control & Communication	3.1	Network Monitoring
	3.2	Network Control & Switching
	3.3	Sensor Control
	3.4	Signal Processing
	3.5	Message Processing
	3.6	Message Distribution
	3.7	Message Logging & Retrieval
	3.8	Data Reduction
	3.9	Other
Executive	4.1	Computer Resource Management
	4.2	Computer Operator Interface
	4.3	Other Terminal Operator Interface
	4.4	Special Device Interface
	4.5	Other Input or Output
	4.6	Error Handling/Reconfiguration/Recovery
	4.7	Multicomputer Configuration Control
	4.8	Performance Monitoring & Data Collection
	4.9	Other
Data Base	5.1	On-line Data Base Retrieval & Output
	5.2	On-line Data Base Initialization & Updating
	5.3	Other
Training	6.1	Control of Exercise Sequencing
	6.2	Operator Performance Data Collection
	6.3	Other
On-Line Equipment Diagnostic	7.1	System Readiness Test
	7.2	Computer Diagnostic
	7.3	Memory Diagnostic
	7.4	Display Diagnostic
	7.5	Switch/Indication Panel Diagnostic
	7.6	I/O Diagnostic
	7.7	Mod Diagnostic
	7.8	Other

TABLE 3.-2

Software Functions (continued)

Category	Index	Function
Operating System	8.1	Computer Resource Management
	8.2	Computer Operator Interface
	8.3	Terminal Operator Interface
	8.4	Input or Output
	8.5	Error Handling/Reconfiguration/Recovery
	8.6	Performance Monitoring & Data Collection
	8.7	Other
Equipment Maintenance	9.1	Off-Line Computer Diagnostics
	9.2	Other
Software	10.1	Higher-Order Language Compiler
	10.2	Assembler
	10.3	Debugger
	10.4	Loader or Editor
	10.5	Other
Off-Line Data Base Management	11.1	Data Base Definition
	11.2	Data Base Initialization & Updating
	11.3	Data Base Retrieval & Output Formatting
	11.4	Data Base Restructuring
	11.5	Off-Line Data Base
	11.6	Other
Design	12.1	Data Base Design
	12.2	Data Base Processor Design
	12.3	Performance Simulation
	12.4	Data Reduction
	12.5	Data Analysis
	12.6	Other
Test Software	13.1	Test Case Generation
	13.2	Test Case Data Recording
	13.3	Test Data Reduction
	13.4	Test Analysis
	13.5	Other
Utilities	14.1	Media Conversions
	14.2	Format Translation
	14.3	Sort/Merge
	14.4	Program Library Maintenance
	14.5	Other

TABLE 3.-2

Software Functions (continued)

Category	Index	Function
Off-Line Training	15.1	Data Reduction, Category A
	15.2	Data Reduction, Category B
	15.3	Scenario Preparation
	15.4	Other
Project Management	16.1	Project Event Status Account
	16.2	Schedule Maintenance/Projection
	16.3	Financial Accounting
	16.4	Software Cost Reporting
	16.5	Hardware Cost Reporting
	16.6	Software Cost Prediction
	16.7	Hardware Cost Prediction
	16.8	Other
Hardware Subsystem Simulations	17.1	Interfacing Hardware Simulations
	17.2	Environmental Simulators
	17.3	Operator Action Simulations
	17.4	Other

TABLE 3.-3

NORMALIZED FUNCTIONAL SIZING STATISTICS FOR AVIONICS

Function Index	ARINC Average Size (LOC)*	SASET Average Size (LOC)*
1.1	633	1096
1.2	2888	5000
1.3	4199	7273
2.2	1376	2383
2.4	2106	3648
2.5	9000	15590
2.6	7057	12223
2.7	3567	6178
3.1	7164	12400
3.2	4296	7440
3.3	5661	9800
3.4	2741	4747
3.5	8220	14237
3.6	1211	2100
3.9	1232	2100
4.1	4129	7150
4.2	6212	10760
4.3	12501	21650
4.4	2512	4350
4.5	560	970
4.8	3434	5950
5.1	6172	10600
5.2	1314	2275
5.3	9021	15625
7.1	898	1555
10.3	795	1375
13.1	3935	6815
13.4	10963	18988
17.1	229	400
17.2	9000	15588

* LINES OF CODE (HOL equivalent)
Less Comments

IV. Calibration of AVIONICS Data

Figures 4.-1 through 4.-12 illustrate typical calibration curves obtained using the mix complexity and project complexity parameters defined in reference (2) "Cost Drivers Report." The respective curves are based upon AVIONICS data from over 150 real world software development projects. The equation plotted has the following generic form:

$$(\text{Productivity}) = (\text{Factor})\ (\text{Conversion})\ (\text{Mix})^{C1}\ (\text{Prog})^{C2}$$

The four (4) plots shown for each type of software (Systems, Application, Support) illustrate the sensitivity of the corresponding independent variable used. As can be observed from the curves, these data are well within the range of the productivity factor derived from the CER given in Figure 2.-1. Furthermore, the overall variation of complexity factors defined can be utilized to obtain fine gradations of productivity factors within each type of software. Thus, SASET can be validated using the table look-ups from which the plots were originally derived.

Appendix I illustrates the tabular data associated with the curves illustrated above (Application Software). Only a sample segment of the data are illustrated. This includes variations and sensitivity analysis when each of the four (4) variables (Factor, Conversion, Mix, and Program variables) given by the above equation are treated as "independent" variables. Similar tables are formulated for Systems and Support software.

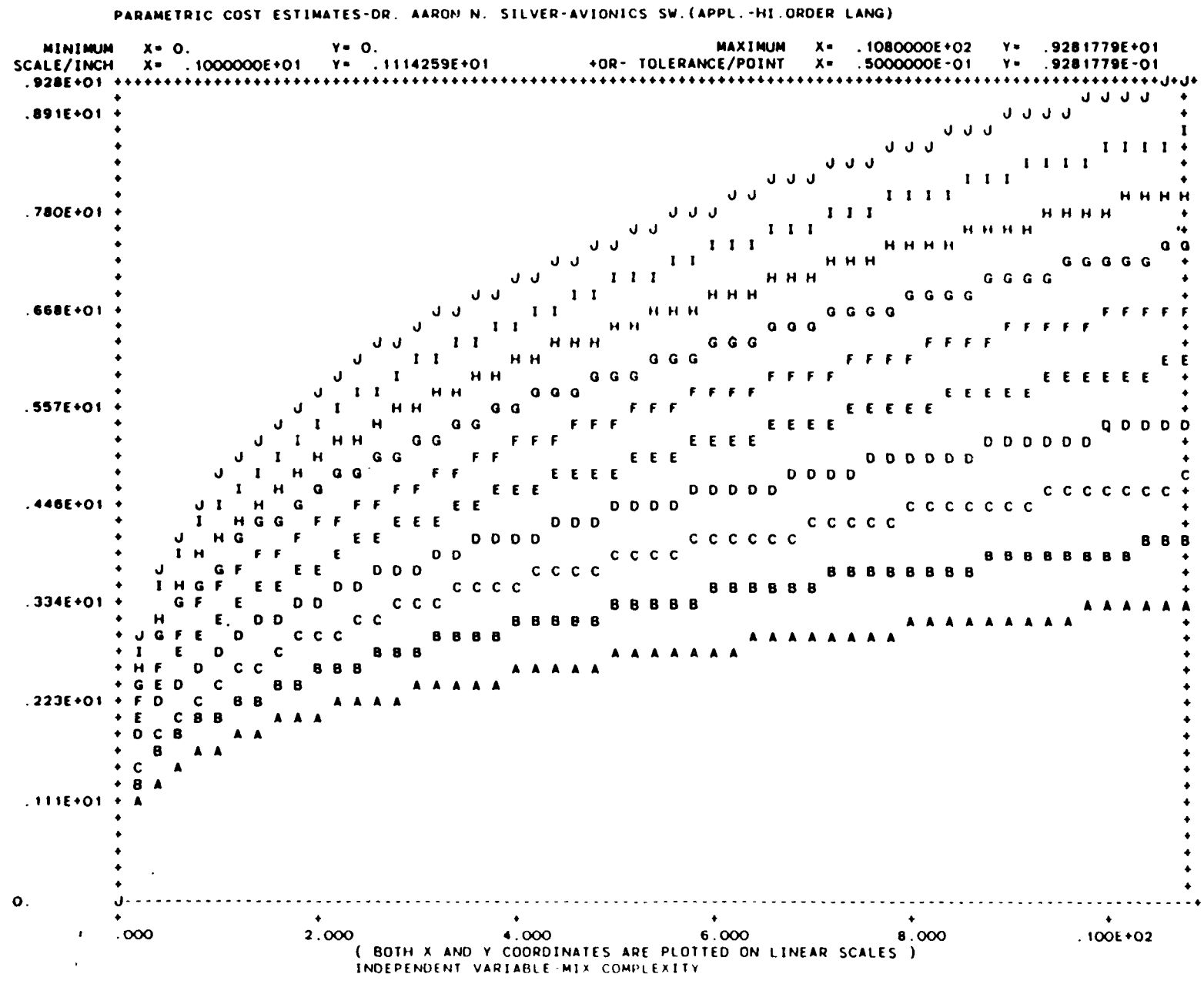


Figure 4.-1 PLOT OF PRODUCTIVITY (MAN-HRS/LOC) VS. MIX COMPLEXITY (PC=200-650)

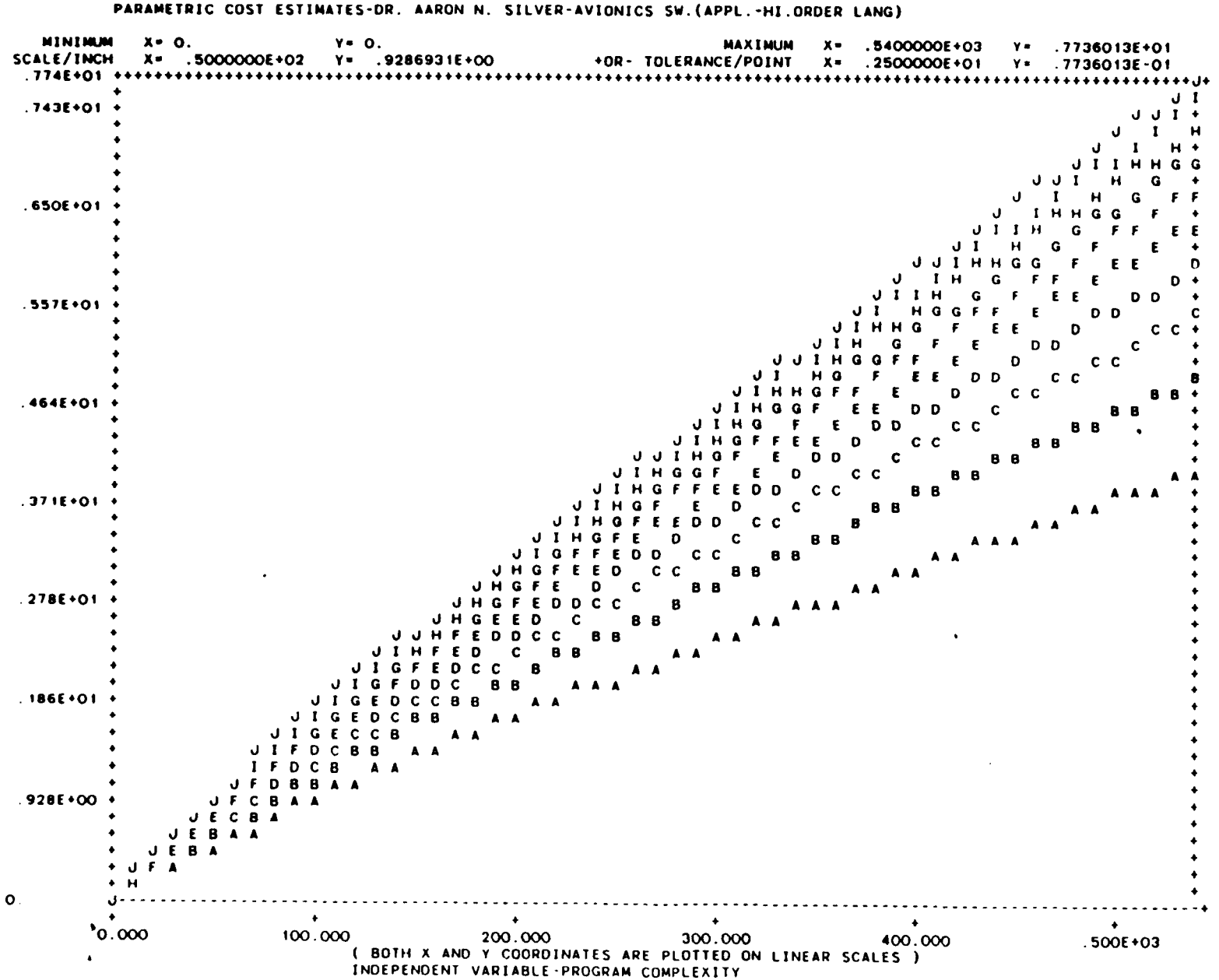


Figure 4.-2 PLOT OF PRODUCTIVITY (HRS/LOC) VS. PROGRAM COMPLEXITY (MC=1 TO 10)

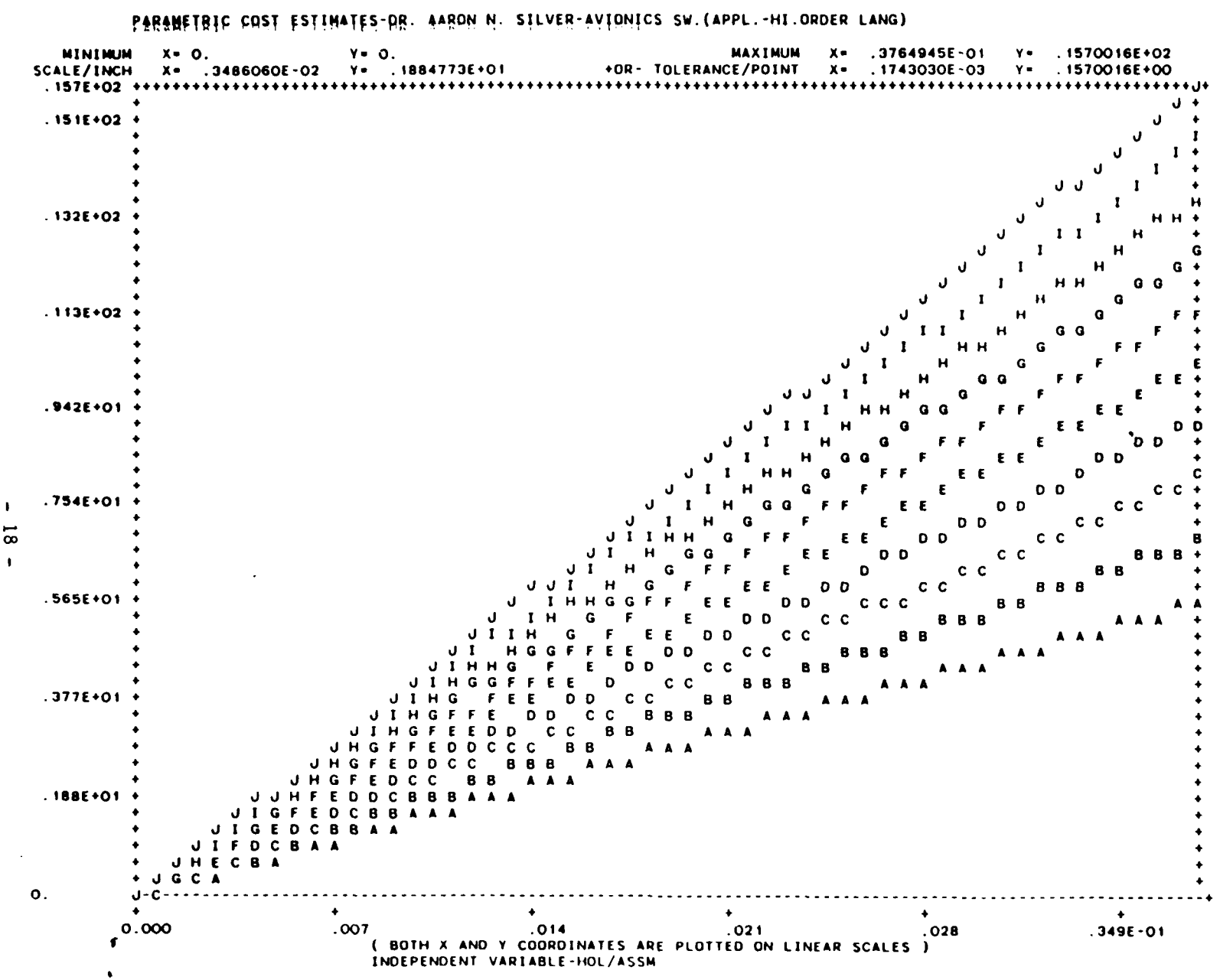


Figure 4.-3 PLOT OF PRODUCTIVITY (HRS/LOC) VS. HOL/ASSM (MC=4.5, PC=200-650)

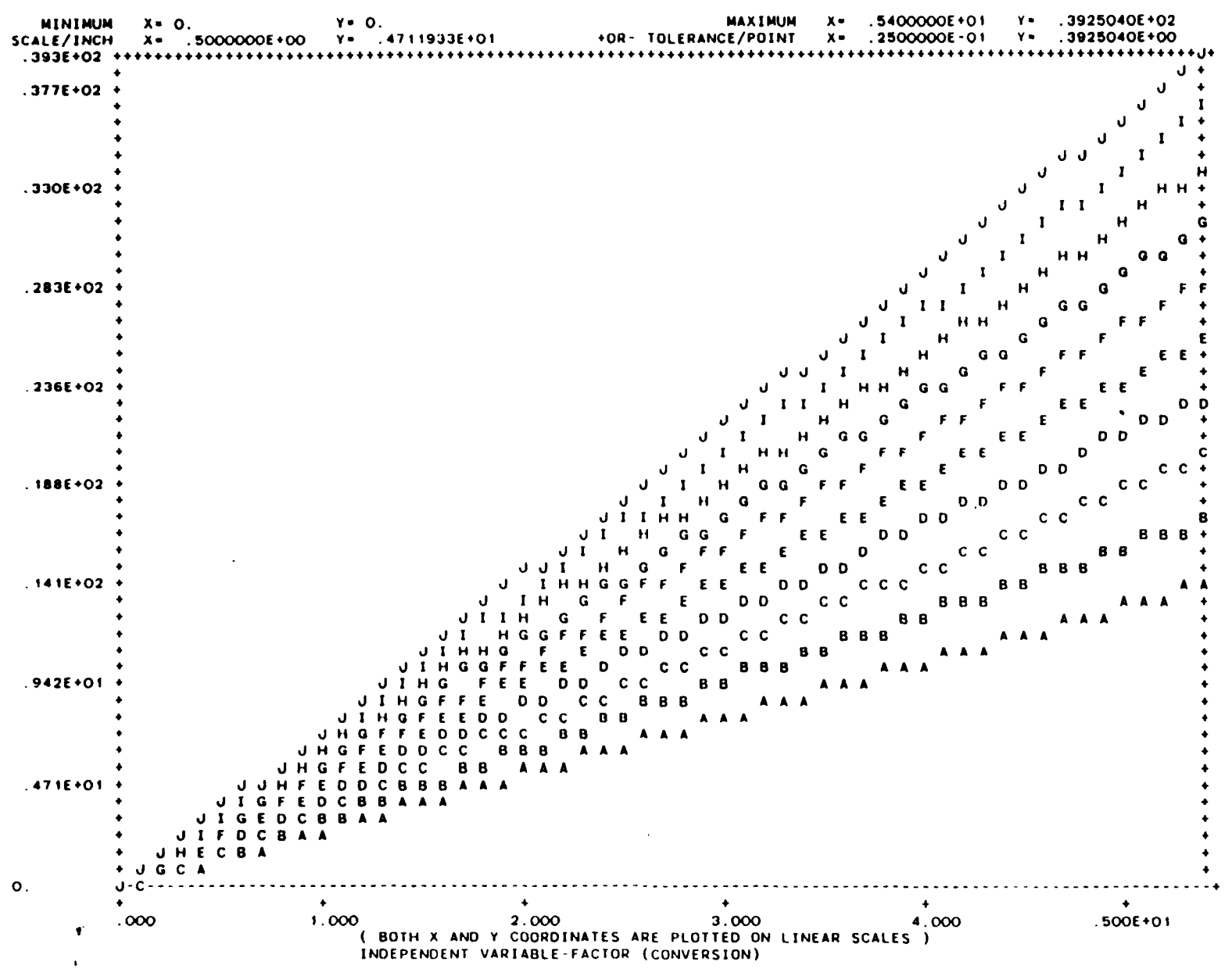


Figure 4.-4 PLOT OF PRODUCTIVITY (HRS/LOC) VS FACTOR (MC=4.5, PC=200-650)

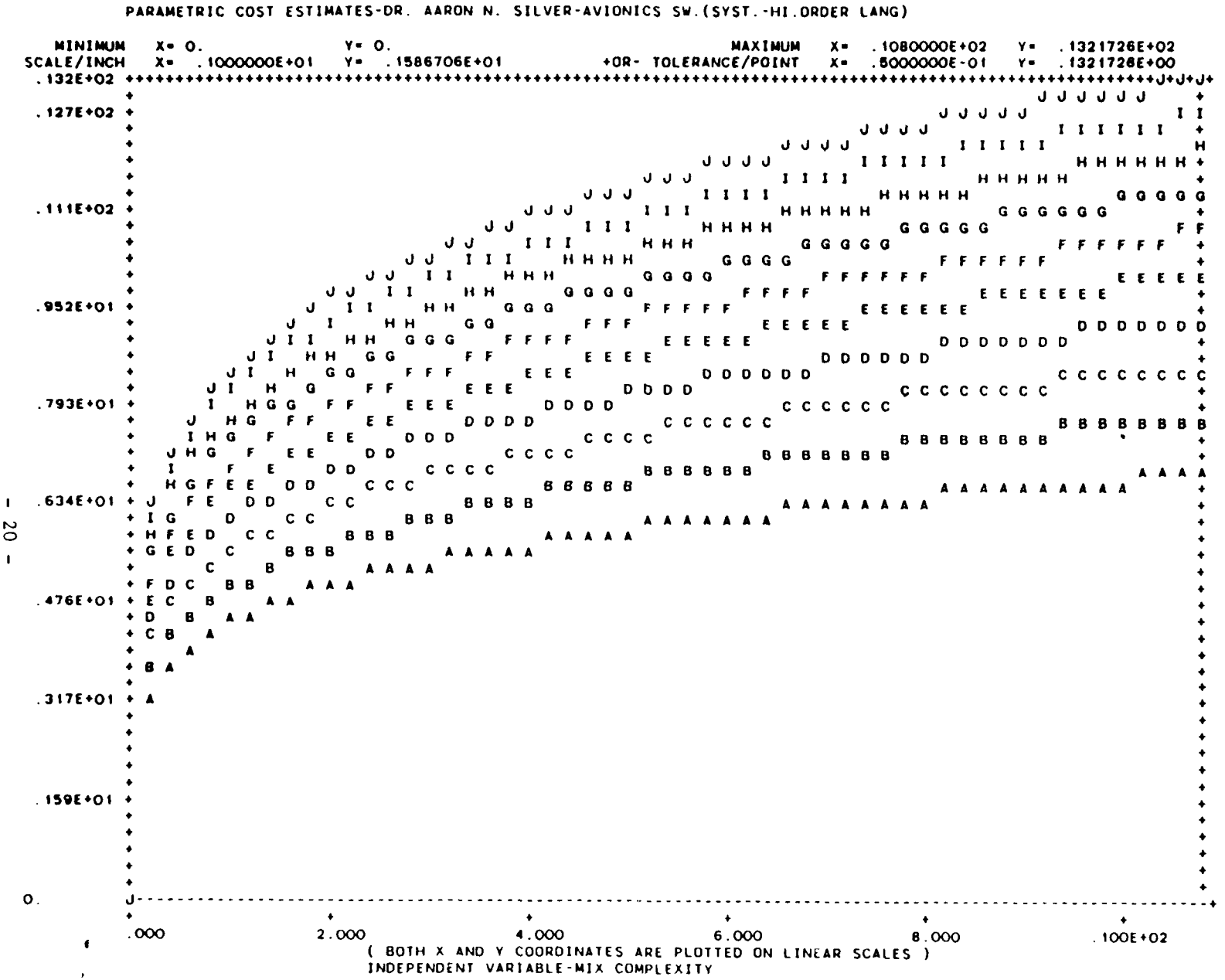


Figure 4.-5 PLOT OF PRODUCTIVITY (HRS/LOC) VS. MIX COMPLEXITY (PC=200-650)

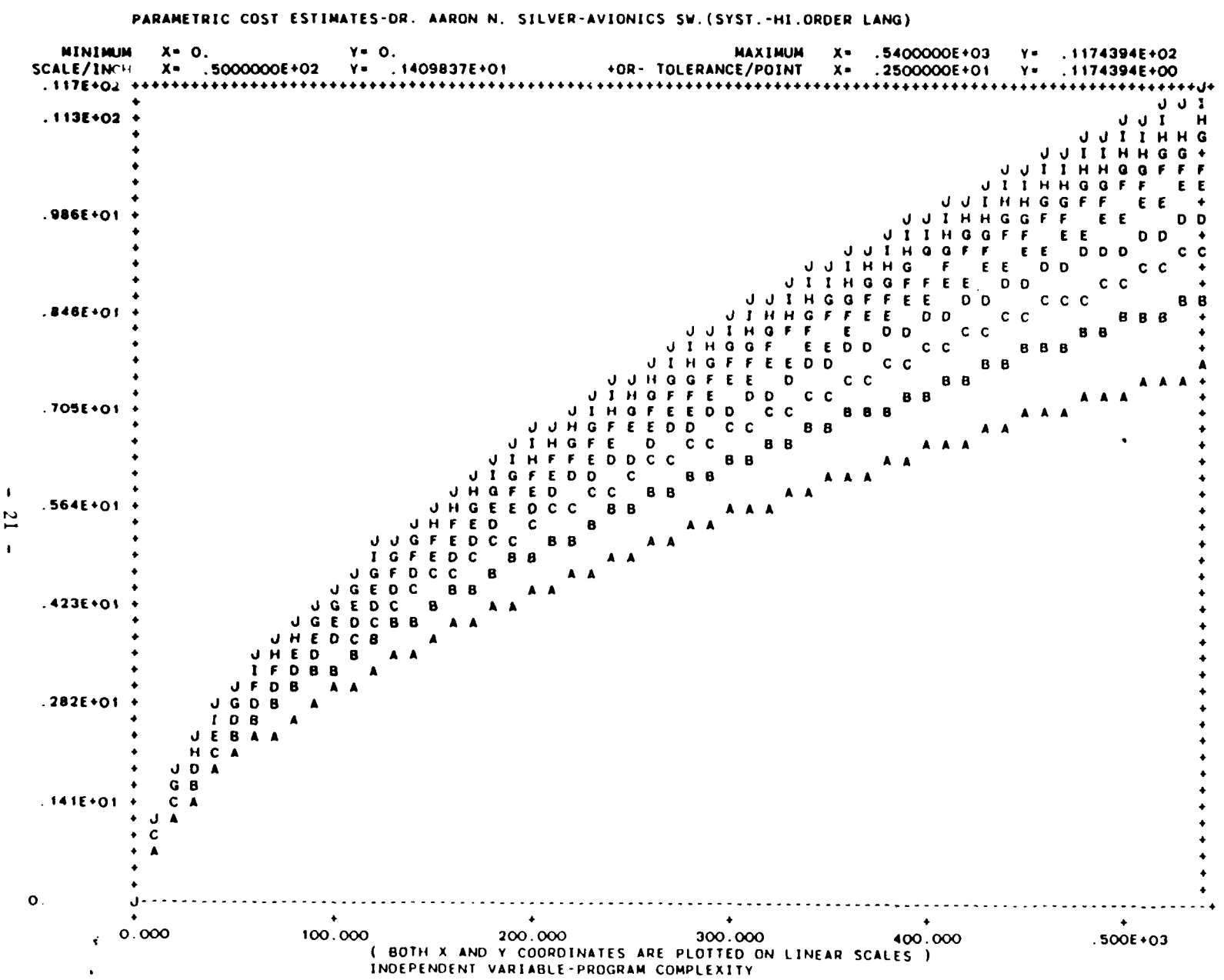


Figure 4.-6 PLOT OF PRODUCTIVITY (HRS/LOC) VS. PROGRAM COMPLEXITY (MC=1 TO 10)

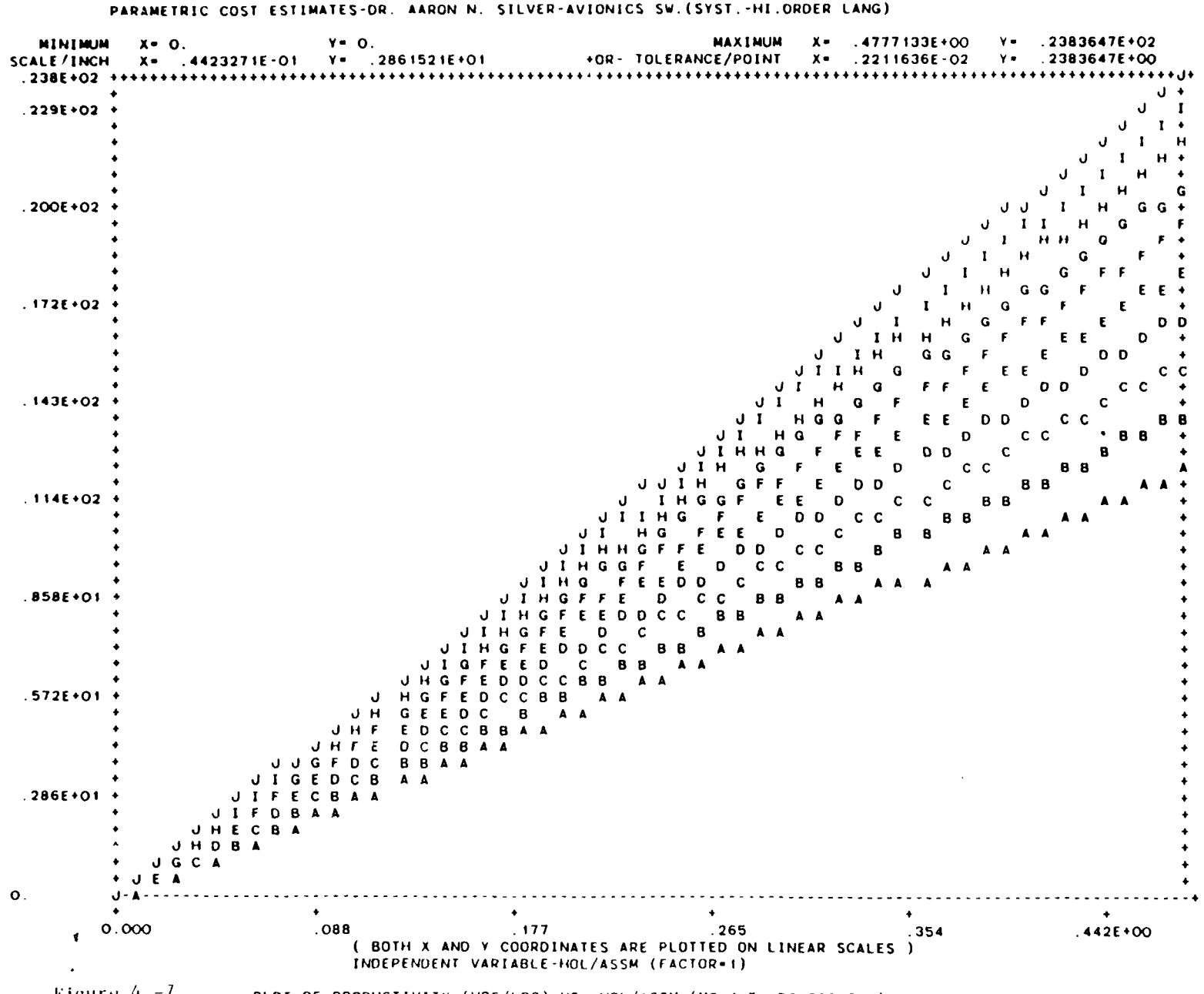


Figure 4.-7 PLOT OF PRODUCTIVITY (HRS/LOC) VS. HOL/ASSM (MC=4.5, PC=200-650)

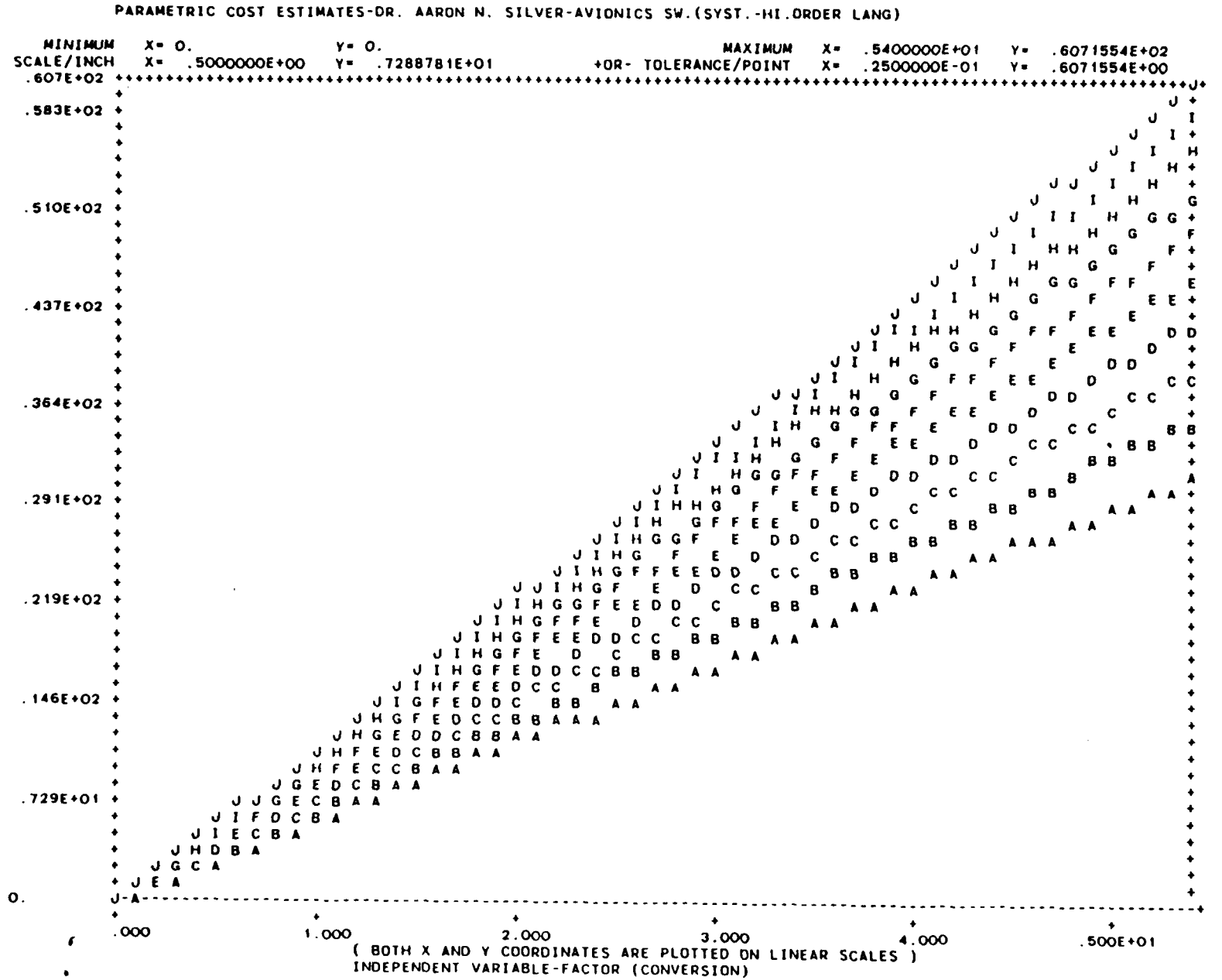


Figure 4.-8 PLOT OF PRODUCTIVITY (HRS/LOC) VS. FACTOR (MC=4.5, PC=200-650)

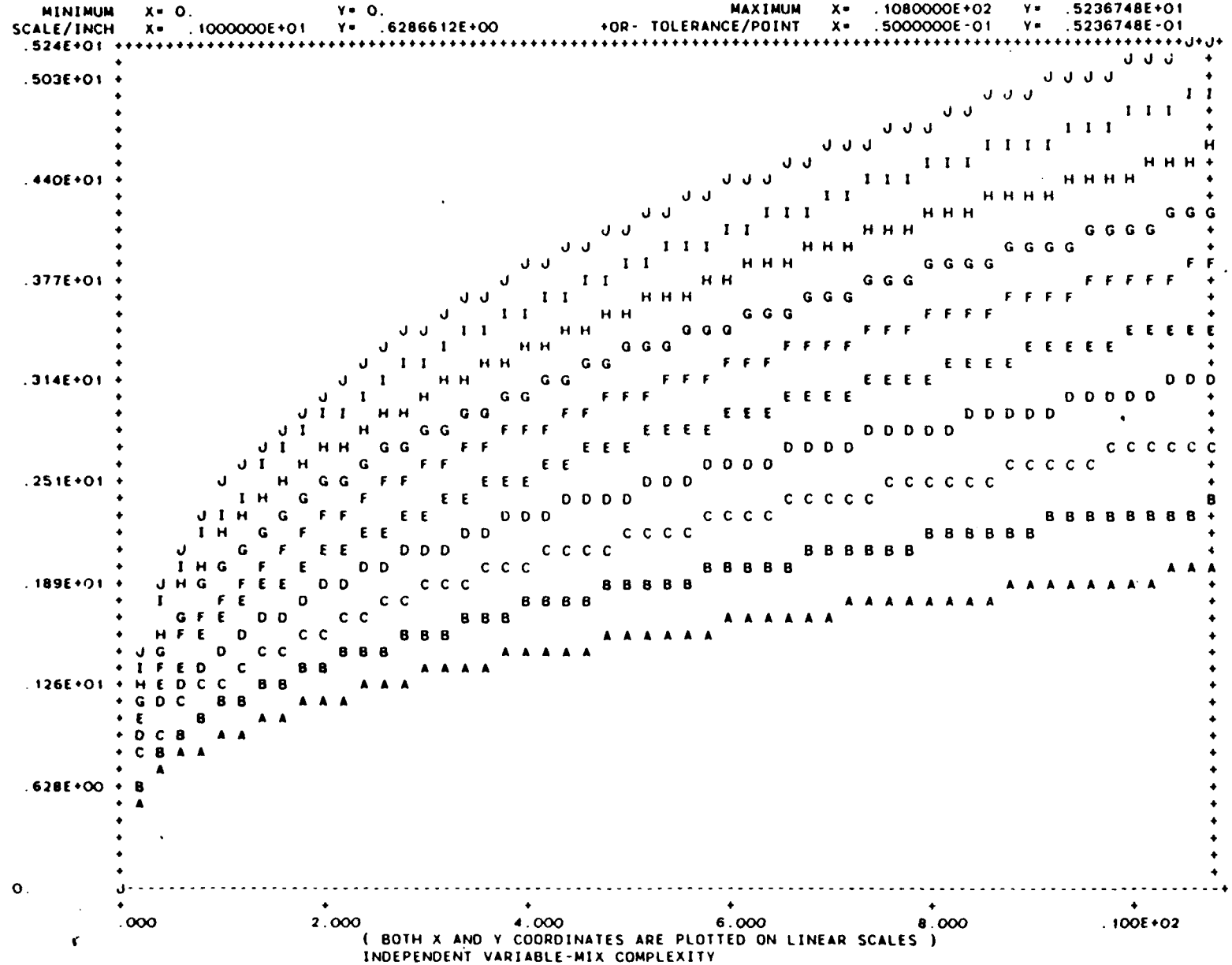


Figure 4.-9 PLOT OF PRODUCTIVITY (HRS/LOC) VS. MIX COMPLEXITY (PC=200-650)

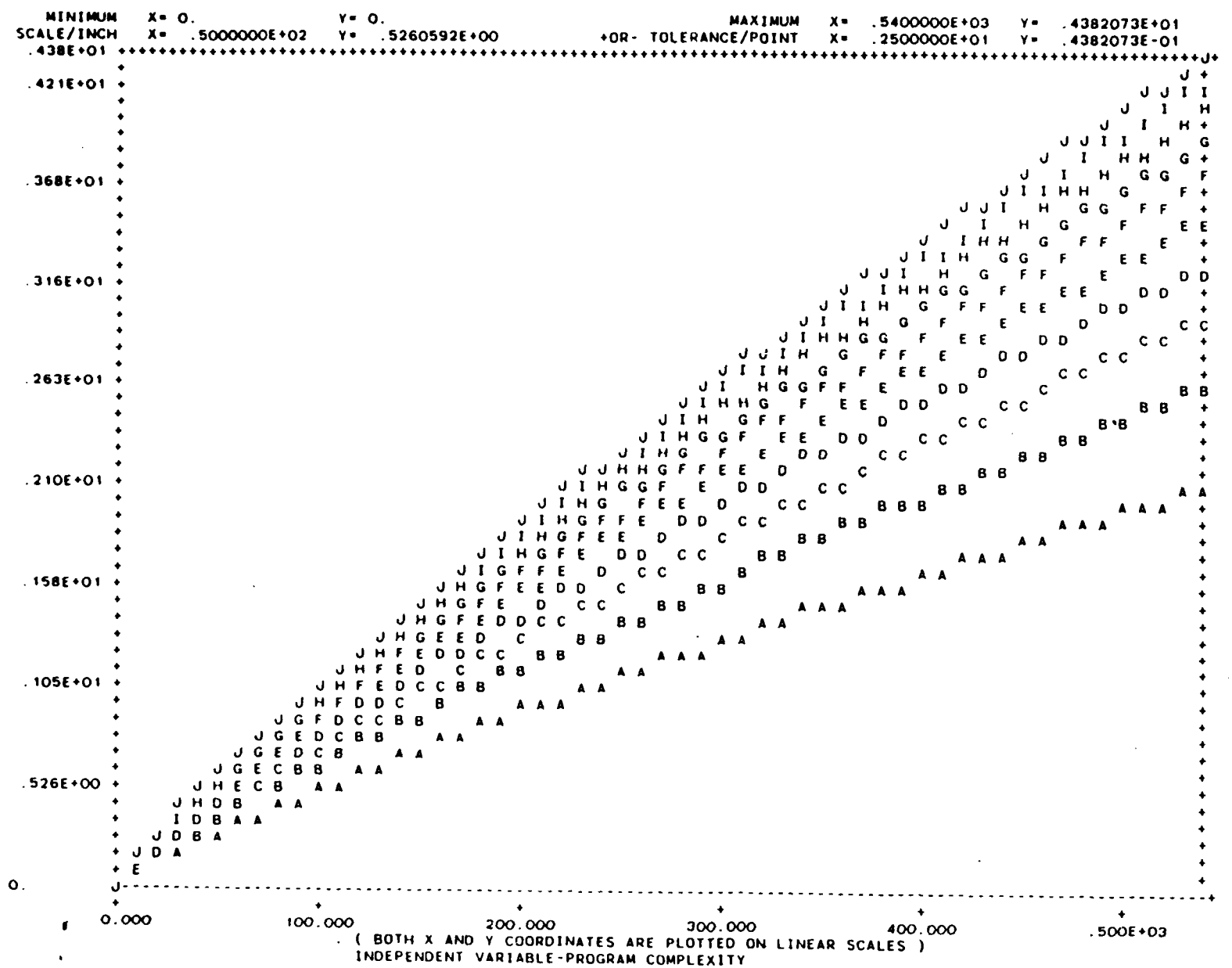


Figure 4.-10 PLOT OF PRODUCTIVITY (HRS/LOC) VS. PROGRAM COMPLEXITY (MC=1 TO 10)

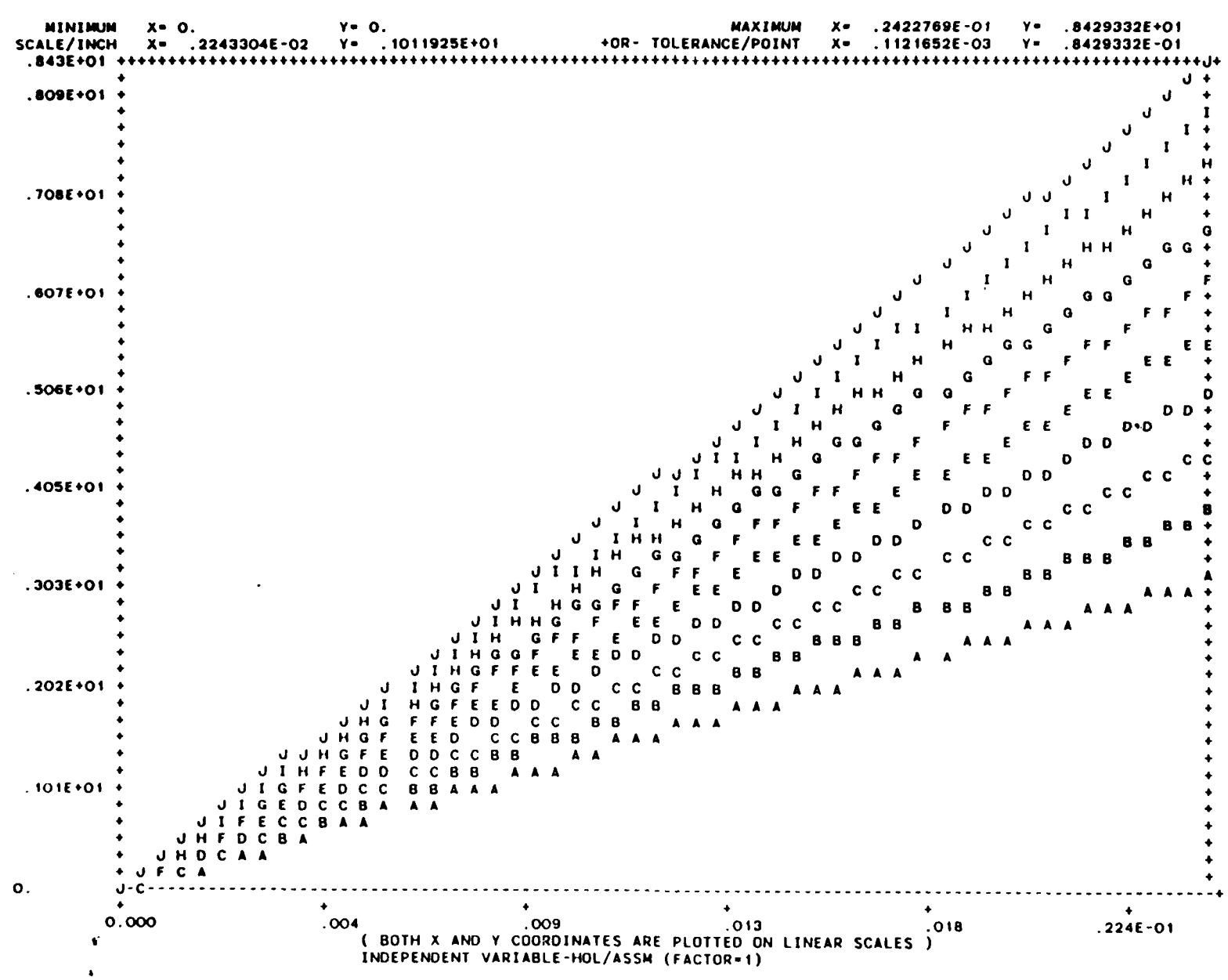


Figure 4.-11 PLOT OF PRODUCTIVITY (HRS/LOC) VS. HOL/ASSM (MC=4.5, PC=200-650)

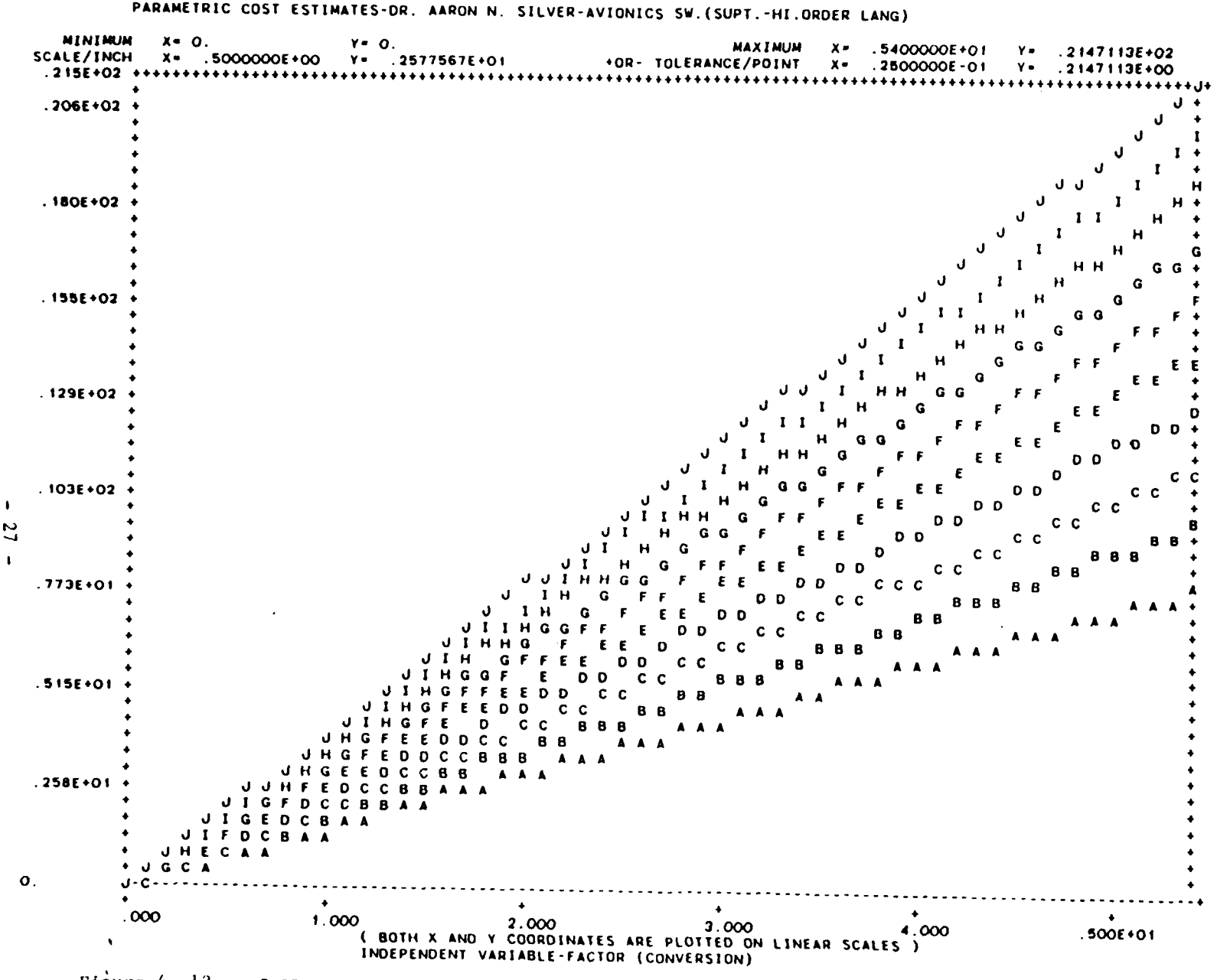


Figure 4.-12 PLOT OF PRODUCTIVITY (HRS/LOC) VS. FACTOR (MC=4.5, PC=200-650)

==========OUTPUT COMPUTATIONS==========

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 200.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	1.097	1.207	1.042
3	.400	1.331	1.464	1.265
4	.600	1.491	1.640	1.416
5	.800	1.616	1.777	1.535
6	1.000	1.720	1.892	1.634
7	1.200	1.809	1.990	1.719
8	1.400	1.889	2.078	1.795
9	1.600	1.961	2.157	1.863
10	1.800	2.026	2.229	1.925
11	2.000	2.087	2.296	1.982
12	2.200	2.143	2.357	2.036
13	2.400	2.196	2.415	2.086
14	2.600	2.245	2.470	2.133
15	2.800	2.292	2.522	2.178
16	3.000	2.337	2.571	2.220
17	3.200	2.380	2.617	2.261
18	3.400	2.420	2.662	2.299
19	3.600	2.459	2.705	2.336
20	3.800	2.497	2.746	2.372
21	4.000	2.533	2.786	2.406
22	4.200	2.567	2.824	2.439
23	4.400	2.601	2.861	2.471
24	4.600	2.633	2.897	2.502
25	4.800	2.665	2.931	2.532
26	5.000	2.695	2.965	2.561
27	5.200	2.725	2.998	2.589
28	5.400	2.754	3.029	2.616
29	5.600	2.782	3.060	2.643
30	5.800	2.809	3.090	2.669
31	6.000	2.836	3.120	2.694
32	6.200	2.862	3.148	2.719
33	6.400	2.888	3.177	2.743
34	6.600	2.913	3.204	2.767
35	6.800	2.937	3.231	2.790
36	7.000	2.961	3.257	2.813
37	7.200	2.984	3.283	2.835
38	7.400	3.007	3.308	2.857
39	7.600	3.030	3.333	2.878
40	7.800	3.052	3.357	2.899
41	8.000	3.073	3.381	2.920
42	8.200	3.095	3.404	2.940
43	8.400	3.116	3.427	2.960
44	8.600	3.136	3.450	2.979
45	8.800	3.156	3.472	2.999
46	9.000	3.176	3.494	3.017
47	9.200	3.196	3.515	3.036
48	9.400	3.215	3.537	3.054
49	9.600	3.234	3.557	3.072
50	9.800	3.253	3.578	3.090

PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW (APPL.-HI.ORDER LANG)

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 250.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	1.331	1.464	1.265
3	.400	1.615	1.777	1.535
4	.600	1.809	1.990	1.719
5	.800	1.960	2.156	1.862
6	1.000	2.086	2.295	1.982
7	1.200	2.195	2.415	2.086
8	1.400	2.292	2.521	2.177
9	1.600	2.379	2.617	2.260
10	1.800	2.459	2.705	2.336
11	2.000	2.532	2.785	2.405
12	2.200	2.600	2.860	2.470
13	2.400	2.664	2.931	2.531
14	2.600	2.725	2.997	2.588
15	2.800	2.782	3.060	2.642
16	3.000	2.836	3.119	2.694
17	3.200	2.887	3.176	2.743
18	3.400	2.937	3.230	2.790
19	3.600	2.984	3.282	2.835
20	3.800	3.029	3.332	2.878
21	4.000	3.073	3.380	2.919
22	4.200	3.115	3.427	2.959
23	4.400	3.156	3.471	2.998
24	4.600	3.195	3.515	3.035
25	4.800	3.233	3.557	3.072
26	5.000	3.270	3.597	3.107
27	5.200	3.306	3.637	3.141
28	5.400	3.341	3.676	3.174
29	5.600	3.376	3.713	3.207
30	5.800	3.409	3.750	3.238
31	6.000	3.441	3.785	3.269
32	6.200	3.473	3.820	3.299
33	6.400	3.504	3.854	3.329
34	6.600	3.534	3.887	3.357
35	6.800	3.564	3.920	3.385
36	7.000	3.593	3.952	3.413
37	7.200	3.621	3.983	3.440
38	7.400	3.649	4.014	3.466
39	7.600	3.676	4.044	3.492
40	7.800	3.703	4.073	3.518
41	8.000	3.729	4.102	3.543
42	8.200	3.755	4.130	3.567
43	8.400	3.780	4.158	3.591
44	8.600	3.805	4.186	3.615
45	8.800	3.830	4.213	3.638
46	9.000	3.854	4.239	3.661
47	9.200	3.878	4.265	3.684
48	9.400	3.901	4.291	3.706
49	9.600	3.924	4.316	3.728
50	9.800	3.947	4.341	3.749
51	10.000	3.969	4.366	3.770
52	10.200	3.991	4.390	3.791
53	10.400	4.013	4.414	3.812

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 300.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	1.559	1.715	1.481
3	.400	1.892	2.081	1.797
4	.600	2.119	2.331	2.013
5	.800	2.296	2.526	2.181
6	1.000	2.444	2.688	2.321
7	1.200	2.571	2.828	2.443
8	1.400	2.684	2.953	2.550
9	1.600	2.786	3.065	2.647
10	1.800	2.879	3.167	2.736
11	2.000	2.965	3.262	2.817
12	2.200	3.045	3.350	2.893
13	2.400	3.120	3.432	2.964
14	2.600	3.191	3.510	3.031
15	2.800	3.258	3.583	3.095
16	3.000	3.321	3.653	3.155
17	3.200	3.381	3.720	3.212
18	3.400	3.439	3.783	3.267
19	3.600	3.494	3.844	3.320
20	3.800	3.548	3.902	3.370
21	4.000	3.599	3.959	3.419
22	4.200	3.648	4.013	3.466
23	4.400	3.696	4.065	3.511
24	4.600	3.742	4.116	3.555
25	4.800	3.787	4.165	3.597
26	5.000	3.830	4.213	3.639
27	5.200	3.872	4.260	3.679
28	5.400	3.913	4.305	3.718
29	5.600	3.953	4.349	3.756
30	5.800	3.992	4.392	3.793
31	6.000	4.030	4.433	3.829
32	6.200	4.067	4.474	3.864
33	6.400	4.104	4.514	3.898
34	6.600	4.139	4.553	3.932
35	6.800	4.174	4.591	3.965
36	7.000	4.208	4.628	3.997
37	7.200	4.241	4.665	4.029
38	7.400	4.273	4.701	4.060
39	7.600	4.305	4.736	4.090
40	7.800	4.337	4.770	4.120
41	8.000	4.367	4.804	4.149
42	8.200	4.398	4.837	4.178
43	8.400	4.427	4.870	4.206
44	8.600	4.457	4.902	4.234
45	8.800	4.485	4.934	4.261
46	9.000	4.514	4.965	4.288
47	9.200	4.541	4.995	4.314
48	9.400	4.569	5.026	4.340
49	9.600	4.596	5.055	4.366
50	9.800	4.622	5.084	4.391
51	10.000	4.648	5.113	4.416
52	10.200	4.674	5.141	4.440
53	10.400	4.699	5.169	4.465

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW (APPL HI ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 350.000

NO. TERMS	IND. VAR.	DEP. VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	1.782	1.960	1.693
3	.400	2.162	2.379	2.054
4	.600	2.422	2.664	2.300
5	.800	2.624	2.886	2.493
6	1.000	2.793	3.072	2.653
7	1.200	2.939	3.233	2.792
8	1.400	3.068	3.375	2.915
9	1.600	3.185	3.503	3.025
10	1.800	3.291	3.620	3.126
11	2.000	3.389	3.728	3.220
12	2.200	3.481	3.829	3.307
13	2.400	3.566	3.923	3.388
14	2.600	3.647	4.012	3.465
15	2.800	3.723	4.096	3.537
16	3.000	3.796	4.175	3.606
17	3.200	3.865	4.251	3.671
18	3.400	3.931	4.324	3.734
19	3.600	3.994	4.393	3.794
20	3.800	4.055	4.460	3.852
21	4.000	4.113	4.525	3.908
22	4.200	4.170	4.587	3.961
23	4.400	4.224	4.647	4.013
24	4.600	4.277	4.705	4.063
25	4.800	4.328	4.761	4.112
26	5.000	4.378	4.815	4.159
27	5.200	4.426	4.868	4.205
28	5.400	4.473	4.920	4.249
29	5.600	4.518	4.970	4.293
30	5.800	4.563	5.019	4.335
31	6.000	4.606	5.067	4.376
32	6.200	4.649	5.114	4.416
33	6.400	4.690	5.159	4.456
34	6.600	4.731	5.204	4.494
35	6.800	4.770	5.247	4.532
36	7.000	4.809	5.290	4.569
37	7.200	4.847	5.332	4.605
38	7.400	4.884	5.373	4.640
39	7.600	4.921	5.413	4.675
40	7.800	4.957	5.452	4.709
41	8.000	4.992	5.491	4.742
42	8.200	5.026	5.529	4.775
43	8.400	5.060	5.566	4.807
44	8.600	5.094	5.603	4.839
45	8.800	5.126	5.639	4.870
46	9.000	5.159	5.674	4.901
47	9.200	5.190	5.709	4.931
48	9.400	5.222	5.744	4.961
49	9.600	5.252	5.778	4.990
50	9.800	5.283	5.811	5.019
51	10.000	5.313	5.844	5.047
52	10.200	5.342	5.876	5.075
53	10.400	5.371	5.908	5.103

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 400.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	2.000	2.200	1.900
3	.400	2.428	2.670	2.306
4	.600	2.719	2.990	2.583
5	.800	2.946	3.241	2.799
6	1.000	3.135	3.449	2.979
7	1.200	3.299	3.629	3.134
8	1.400	3.444	3.789	3.272
9	1.600	3.575	3.933	3.396
10	1.800	3.695	4.064	3.510
11	2.000	3.805	4.186	3.615
12	2.200	3.908	4.299	3.712
13	2.400	4.004	4.404	3.804
14	2.600	4.094	4.504	3.890
15	2.800	4.180	4.598	3.971
16	3.000	4.261	4.687	4.048
17	3.200	4.339	4.773	4.122
18	3.400	4.413	4.854	4.192
19	3.600	4.484	4.932	4.260
20	3.800	4.552	5.007	4.325
21	4.000	4.618	5.080	4.387
22	4.200	4.681	5.149	4.447
23	4.400	4.742	5.217	4.505
24	4.600	4.802	5.282	4.562
25	4.800	4.859	5.345	4.616
26	5.000	4.915	5.406	4.669
27	5.200	4.969	5.466	4.720
28	5.400	5.022	5.524	4.770
29	5.600	5.073	5.580	4.819
30	5.800	5.123	5.635	4.867
31	6.000	5.171	5.689	4.913
32	6.200	5.219	5.741	4.958
33	6.400	5.266	5.792	5.002
34	6.600	5.311	5.842	5.045
35	6.800	5.355	5.891	5.088
36	7.000	5.399	5.939	5.129
37	7.200	5.442	5.986	5.170
38	7.400	5.483	6.032	5.209
39	7.600	5.524	6.077	5.248
40	7.800	5.565	6.121	5.286
41	8.000	5.604	6.164	5.324
42	8.200	5.643	6.207	5.361
43	8.400	5.681	6.249	5.397
44	8.600	5.718	6.290	5.432
45	8.800	5.755	6.331	5.467
46	9.000	5.791	6.371	5.502
47	9.200	5.827	6.410	5.536
48	9.400	5.862	6.448	5.569
49	9.600	5.897	6.486	5.602
50	9.800	5.931	6.524	5.634
51	10.000	5.964	6.561	5.666
52	10.200	5.997	6.597	5.698
53	10.400	6.030	6.633	5.729

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 450.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	2.215	2.437	2.105
3	.400	2.688	2.957	2.554
4	.600	3.011	3.312	2.860
5	.800	3.263	3.589	3.099
6	1.000	3.472	3.820	3.299
7	1.200	3.654	4.019	3.471
8	1.400	3.815	4.196	3.624
9	1.600	3.959	4.355	3.761
10	1.800	4.092	4.501	3.887
11	2.000	4.214	4.635	4.003
12	2.200	4.328	4.760	4.111
13	2.400	4.434	4.878	4.212
14	2.600	4.534	4.988	4.308
15	2.800	4.629	5.092	4.398
16	3.000	4.719	5.191	4.483
17	3.200	4.805	5.286	4.565
18	3.400	4.887	5.376	4.643
19	3.600	4.966	5.462	4.717
20	3.800	5.041	5.545	4.789
21	4.000	5.114	5.625	4.858
22	4.200	5.184	5.703	4.925
23	4.400	5.252	5.777	4.989
24	4.600	5.318	5.849	5.052
25	4.800	5.381	5.919	5.112
26	5.000	5.443	5.987	5.171
27	5.200	5.503	6.053	5.228
28	5.400	5.561	6.117	5.283
29	5.600	5.618	6.180	5.337
30	5.800	5.673	6.241	5.390
31	6.000	5.727	6.300	5.441
32	6.200	5.780	6.358	5.491
33	6.400	5.831	6.414	5.540
34	6.600	5.882	6.470	5.588
35	6.800	5.931	6.524	5.634
36	7.000	5.979	6.577	5.680
37	7.200	6.026	6.629	5.725
38	7.400	6.073	6.680	5.769
39	7.600	6.118	6.730	5.812
40	7.800	6.163	6.779	5.854
41	8.000	6.206	6.827	5.896
42	8.200	6.249	6.874	5.937
43	8.400	6.291	6.921	5.977
44	8.600	6.333	6.966	6.016
45	8.800	6.374	7.011	6.055
46	9.000	6.414	7.055	6.093
47	9.200	6.453	7.099	6.131
48	9.400	6.492	7.141	6.168
49	9.600	6.530	7.184	6.204
50	9.800	6.568	7.225	6.240
51	10.000	6.605	7.266	6.275
52	10.200	6.642	7.306	6.310
53	10.400	6.678	7.346	6.344

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 500.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	2.427	2.670	2.306
3	.400	2.945	3.240	2.798
4	.600	3.299	3.628	3.134
5	.800	3.575	3.932	3.396
6	1.000	3.804	4.185	3.614
7	1.200	4.003	4.403	3.803
8	1.400	4.179	4.597	3.970
9	1.600	4.338	4.772	4.121
10	1.800	4.483	4.931	4.259
11	2.000	4.617	5.079	4.386
12	2.200	4.741	5.216	4.504
13	2.400	4.858	5.344	4.615
14	2.600	4.968	5.465	4.719
15	2.800	5.072	5.579	4.818
16	3.000	5.170	5.687	4.912
17	3.200	5.264	5.791	5.001
18	3.400	5.354	5.890	5.087
19	3.600	5.441	5.985	5.169
20	3.800	5.523	6.076	5.247
21	4.000	5.603	6.163	5.323
22	4.200	5.680	6.248	5.396
23	4.400	5.754	6.330	5.466
24	4.600	5.826	6.409	5.535
25	4.800	5.896	6.485	5.601
26	5.000	5.963	6.560	5.665
27	5.200	6.029	6.632	5.727
28	5.400	6.093	6.702	5.788
29	5.600	6.155	6.771	5.847
30	5.800	6.216	6.837	5.905
31	6.000	6.275	6.902	5.961
32	6.200	6.332	6.966	6.016
33	6.400	6.389	7.028	6.069
34	6.600	6.444	7.088	6.122
35	6.800	6.498	7.148	6.173
36	7.000	6.551	7.206	6.223
37	7.200	6.603	7.263	6.272
38	7.400	6.653	7.319	6.321
39	7.600	6.703	7.373	6.368
40	7.800	6.752	7.427	6.414
41	8.000	6.800	7.480	6.460
42	8.200	6.847	7.531	6.504
43	8.400	6.893	7.582	6.548
44	8.600	6.938	7.632	6.591
45	8.800	6.983	7.681	6.634
46	9.000	7.027	7.730	6.676
47	9.200	7.070	7.777	6.717
48	9.400	7.113	7.824	6.757
49	9.600	7.155	7.870	6.797
50	9.800	7.196	7.916	6.836
51	10.000	7.237	7.961	6.875
52	10.200	7.277	8.005	6.913
53	10.400	7.317	8.048	6.951

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 550.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	2.636	2.900	2.504
3	.400	3.199	3.519	3.039
4	.600	3.583	3.941	3.403
5	.800	3.882	4.271	3.688
6	1.000	4.132	4.545	3.925
7	1.200	4.348	4.783	4.130
8	1.400	4.539	4.993	4.312
9	1.600	4.712	5.183	4.476
10	1.800	4.869	5.356	4.626
11	2.000	5.014	5.516	4.764
12	2.200	5.150	5.665	4.892
13	2.400	5.276	5.804	5.013
14	2.600	5.396	5.935	5.126
15	2.800	5.508	6.059	5.233
16	3.000	5.616	6.177	5.335
17	3.200	5.718	6.290	5.432
18	3.400	5.815	6.397	5.525
19	3.600	5.909	6.500	5.614
20	3.800	5.999	6.599	5.699
21	4.000	6.085	6.694	5.781
22	4.200	6.169	6.786	5.860
23	4.400	6.250	6.875	5.937
24	4.600	6.328	6.960	6.011
25	4.800	6.403	7.044	6.083
26	5.000	6.477	7.124	6.153
27	5.200	6.548	7.203	6.221
28	5.400	6.617	7.279	6.287
29	5.600	6.685	7.353	6.351
30	5.800	6.751	7.426	6.413
31	6.000	6.815	7.497	6.474
32	6.200	6.878	7.565	6.534
33	6.400	6.939	7.633	6.592
34	6.600	6.999	7.699	6.649
35	6.800	7.057	7.763	6.705
36	7.000	7.115	7.826	6.759
37	7.200	7.171	7.888	6.812
38	7.400	7.226	7.949	6.865
39	7.600	7.280	8.008	6.916
40	7.800	7.333	8.066	6.966
41	8.000	7.385	8.124	7.016
42	8.200	7.436	8.180	7.064
43	8.400	7.486	8.235	7.112
44	8.600	7.536	8.289	7.159
45	8.800	7.584	8.343	7.205
46	9.000	7.632	8.395	7.251
47	9.200	7.679	8.447	7.295
48	9.400	7.725	8.498	7.339
49	9.600	7.771	8.548	7.382
50	9.800	7.816	8.597	7.425
51	10.000	7.860	8.646	7.467
52	10.200	7.904	8.694	7.508
53	10.400	7.947	8.741	7.549

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 600.000

NO. TERMS	IND. VAR.	DEP. VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	2.843	3.127	2.700
3	.400	3.450	3.795	3.277
4	.600	3.863	4.250	3.670
5	.800	4.186	4.605	3.977
6	1.000	4.456	4.901	4.233
7	1.200	4.688	5.157	4 454
8	1.400	4.895	5.384	4.650
9	1.600	5.081	5.589	4.826
10	1.800	5.250	5.775	4.988
11	2.000	5.407	5.948	5.137
12	2.200	5.553	6.108	5.275
13	2.400	5.690	6.259	5.405
14	2.600	5.818	6.400	5.527
15	2.800	5.940	6.534	5.643
16	3.000	6.055	6.661	5.753
17	3.200	6.166	6.782	5.857
18	3.400	6.271	6.898	5.957
19	3.600	6.372	7.009	6.053
20	3.800	6.469	7.116	6.145
21	4.000	6.562	7.218	6.234
22	4.200	6.652	7.317	6.319
23	4.400	6.739	7.413	6.402
24	4.600	6.823	7.506	6.482
25	4.800	6.905	7.595	6.560
26	5.000	6.984	7.682	6.635
27	5.200	7.061	7.767	6.708
28	5.400	7.136	7.849	6.779
29	5.600	7.209	7.929	6.848
30	5.800	7.280	8.008	6.916
31	6.000	7 349	8.084	6.981
32	6.200	7.416	8.158	7.046
33	6.400	7.482	8.231	7.108
34	6.600	7.547	8.302	7.170
35	6.800	7.610	8.371	7.230
36	7.000	7.672	8.439	7.288
37	7.200	7.733	8.506	7.346
38	7.400	7.792	8.571	7.402
39	7.600	7.850	8.635	7.458
40	7.800	7.907	8.698	7.512
41	8.000	7.964	8.760	7.565
42	8.200	8.019	8.821	7.618
43	8.400	8.073	8.880	7.669
44	8.600	8.126	8.939	7.720
45	8.800	8.178	8.996	7.769
46	9.000	8.230	9.053	7.818
47	9.200	8.281	9.109	7.867
48	9.400	8.330	9.163	7.914
49	9.600	8.380	9.217	7.961
50	9.800	8.428	9.271	8.007
51	10.000	8.476	9.323	8.052
52	10.200	8.523	9.375	8 096
53	10.400	8.569	9.426	8.141

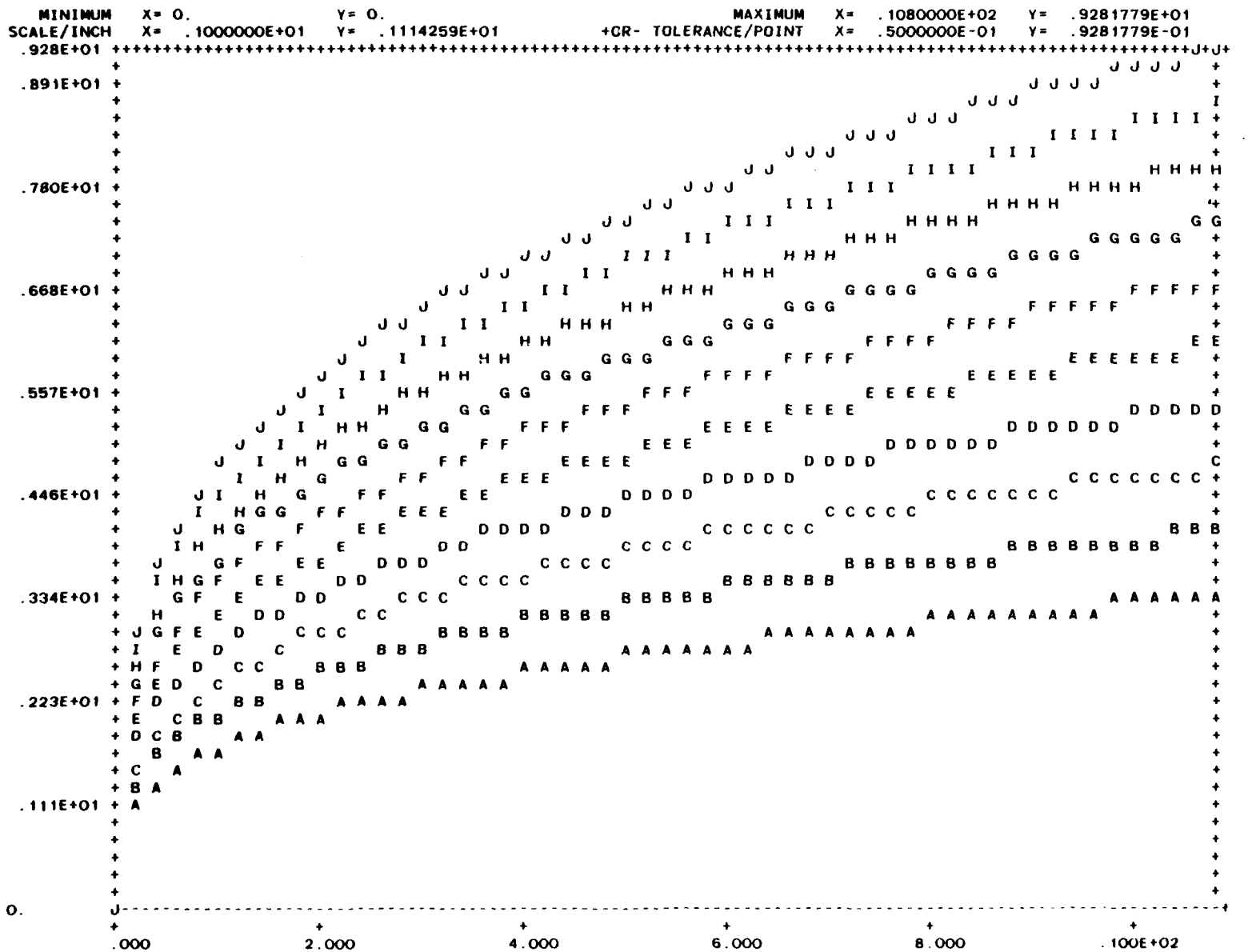
---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 650.000

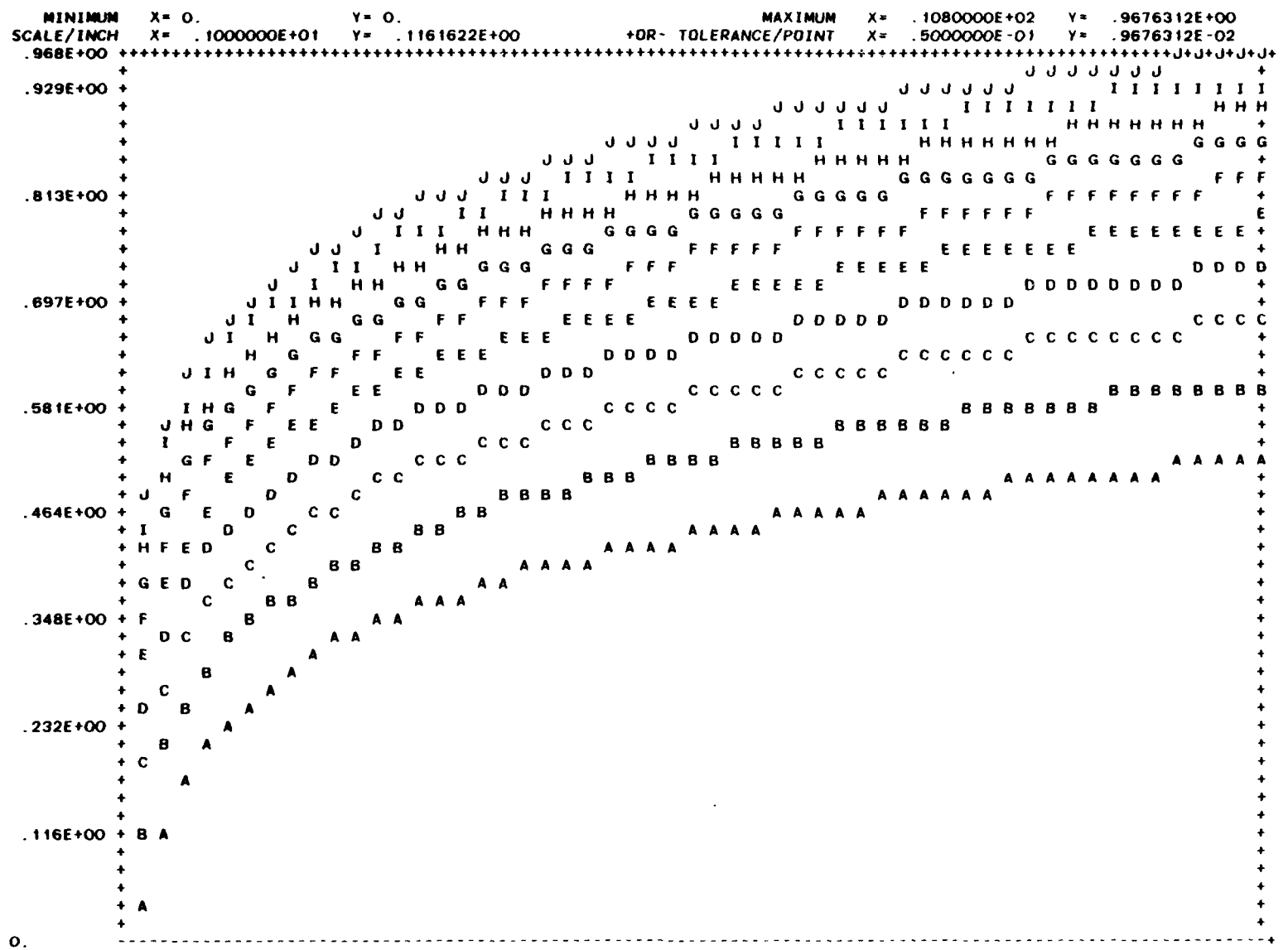
NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.200	3.047	3.351	2.894
3	.400	3.697	4.067	3.513
4	.600	4.141	4.555	3.934
5	.800	4.487	4.936	4.263
6	1.000	4.776	5.253	4.537
7	1.200	5.025	5.528	4.774
8	1.400	5.246	5.771	4.984
9	1.600	5.445	5.990	5.173
10	1.800	5.628	6.190	5.346
11	2.000	5.796	6.375	5.506
12	2.200	5.952	6.547	5.654
13	2.400	6.098	6.708	5.793
14	2.600	6.236	6.860	5.924
15	2.800	6.367	7.003	6.048
16	3.000	6.490	7.139	6.166
17	3.200	6.608	7.269	6.278
18	3.400	6.721	7.393	6.385
19	3.600	6.829	7.512	6.488
20	3.800	6.933	7.627	6.587
21	4.000	7.033	7.737	6.682
22	4.200	7.130	7.843	6.773
23	4.400	7.223	7.945	6.862
24	4.600	7.313	8.045	6.948
25	4.800	7.401	8.141	7.031
26	5.000	7.486	8.234	7.111
27	5.200	7.568	8.325	7.190
28	5.400	7.648	8.413	7.266
29	5.600	7.726	8.499	7.340
30	5.800	7.802	8.583	7.412
31	6.000	7.877	8.664	7.483
32	6.200	7.949	8.744	7.552
33	6.400	8.020	8.822	7.619
34	6.600	8.089	8.898	7.685
35	6.800	8.157	8.973	7.749
36	7.000	8.223	9.045	7.812
37	7.200	8.288	9.117	7.874
38	7.400	8.352	9.187	7.934
39	7.600	8.414	9.256	7.993
40	7.800	8.475	9.323	8.052
41	8.000	8.536	9.389	8.109
42	8.200	8.595	9.454	8.165
43	8.400	8.653	9.518	8.220
44	8.600	8.710	9.581	8.274
45	8.800	8.766	9.642	8.328
46	9.000	8.821	9.703	8.380
47	9.200	8.875	9.763	8.432
48	9.400	8.929	9.822	8.482
49	9.600	8.981	9.880	8.532
50	9.800	9.033	9.937	8.582
51	10.000	9.084	9.993	8.630
52	10.200	9.135	10.048	8.678

PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)



PLOT OF PRODUCTIVITY (MAN-HRS/LOC) VS. MIX COMPLEXITY (PC=200-650)

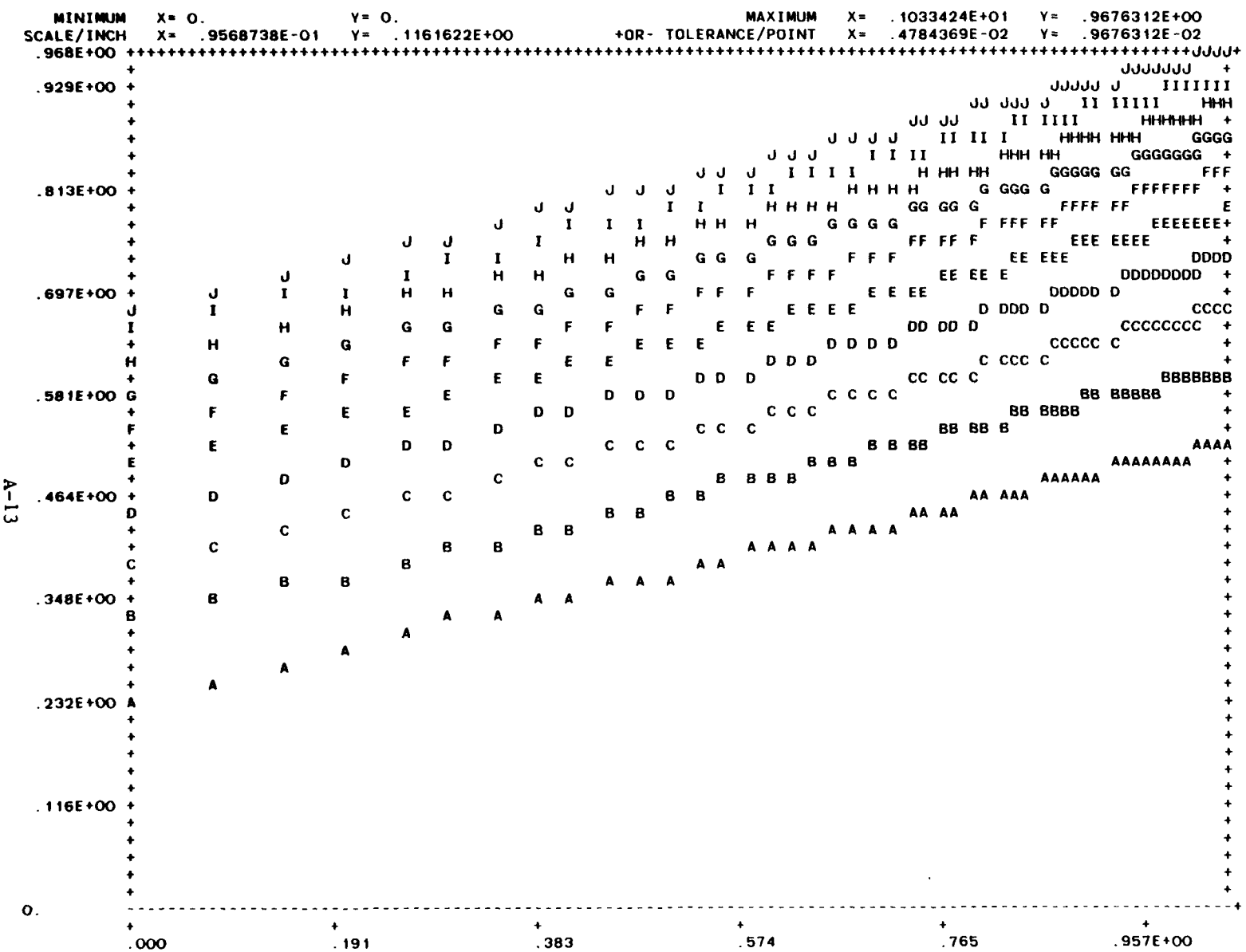
PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)



(X COORDINATE PLOTTED ON LINEAR SCALE, Y COORDINATE PLOTTED ON LOGARITHMIC SCALE)
INDEPENDENT VARIABLE-MIX COMPLEXITY

PLOT OF PRODUCTIVITY (MAN-HRS/LOC) VS. MIX COMPLEXITY (PC=200-650)

PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)



PLOT OF PRODUCTIVITY (MAN-HRS/LOC) VS. MIX COMPLEXITY (PC=200-650)

JNN

==========OUTPUT COMPUTATIONS==========

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 1.000

NO. TERMS	IND. VAR.	DEP. VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.128	.141	.122
3	20.000	.234	.257	.222
4	30.000	.332	.365	.316
5	40.000	.426	.469	.405
6	50.000	.517	.569	.491
7	60.000	.606	.666	.575
8	70.000	.692	.762	.658
9	80.000	.777	.855	.738
10	90.000	.861	.947	.818
11	100.000	.943	1.037	.896
12	110.000	1.024	1.127	.973
13	120.000	1.104	1.215	1.049
14	130.000	1.184	1.302	1.125
15	140.000	1.262	1.389	1.199
16	150.000	1.340	1.474	1.273
17	160.000	1.417	1.559	1.346
18	170.000	1.494	1.643	1.419
19	180.000	1.570	1.726	1.491
20	190.000	1.645	1.809	1.563
21	200.000	1.720	1.892	1.634
22	210.000	1.794	1.973	1.704
23	220.000	1.868	2.054	1.774
24	230.000	1.941	2.135	1.844
25	240.000	2.014	2.215	1.913
26	250.000	2.086	2.295	1.982
27	260.000	2.159	2.374	2.051
28	270.000	2.230	2.453	2.119
29	280.000	2.302	2.532	2.187
30	290.000	2.373	2.610	2.254
31	300.000	2.444	2.688	2.321
32	310.000	2.514	2.765	2.388
33	320.000	2.584	2.843	2.455
34	330.000	2.654	2.919	2.521
35	340.000	2.724	2.996	2.587
36	350.000	2.793	3.072	2.653
37	360.000	2.862	3.148	2.719
38	370.000	2.931	3.224	2.784
39	380.000	2.999	3.299	2.849
40	390.000	3.067	3.374	2.914
41	400.000	3.135	3.449	2.979
42	410.000	3.203	3.524	3.043
43	420.000	3.271	3.598	3.107
44	430.000	3.338	3.672	3.171
45	440.000	3.405	3.746	3.235
46	450.000	3.472	3.820	3.299
47	460.000	3.539	3.893	3.362
48	470.000	3.606	3.966	3.425
49	480.000	3.672	4.039	3.489
50	490.000	3.738	4.112	3.551

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 2.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.156	.171	.148
3	20.000	.284	.312	.270
4	30.000	.403	.443	.383
5	40.000	.517	.569	.491
6	50.000	.628	.690	.596
7	60.000	.735	.809	.698
8	70.000	.840	.924	.798
9	80.000	.943	1.038	.896
10	90.000	1.045	1.149	.992
11	100.000	1.144	1.259	1.087
12	110.000	1.243	1.367	1.181
13	120.000	1.340	1.474	1.273
14	130.000	1.437	1.580	1.365
15	140.000	1.532	1.685	1.455
16	150.000	1.626	1.789	1.545
17	160.000	1.720	1.892	1.634
18	170.000	1.813	1.994	1.722
19	180.000	1.905	2.095	1.809
20	190.000	1.996	2.196	1.896
21	200.000	2.087	2.296	1.982
22	210.000	2.177	2.395	2.068
23	220.000	2.267	2.493	2.153
24	230.000	2.356	2.591	2.238
25	240.000	2.444	2.688	2.322
26	250.000	2.532	2.785	2.405
27	260.000	2.620	2.882	2.489
28	270.000	2.707	2.977	2.571
29	280.000	2.793	3.073	2.654
30	290.000	2.880	3.168	2.736
31	300.000	2.965	3.262	2.817
32	310.000	3.051	3.356	2.898
33	320.000	3.136	3.450	2.979
34	330.000	3.221	3.543	3.060
35	340.000	3.305	3.636	3.140
36	350.000	3.389	3.728	3.220
37	360.000	3.473	3.820	3.299
38	370.000	3.557	3.912	3.379
39	380.000	3.640	4.004	3.458
40	390.000	3.723	4.095	3.536
41	400.000	3.805	4.186	3.615
42	410.000	3.887	4.276	3.693
43	420.000	3.969	4.366	3.771
44	430.000	4.051	4.456	3.849
45	440.000	4.133	4.546	3.926
46	450.000	4.214	4.635	4.003
47	460.000	4.295	4.725	4.080
48	470.000	4.376	4.813	4.157
49	480.000	4.456	4.902	4.234
50	490.000	4.537	4.990	4.310
51	500.000	4.617	5.079	4.386
52	510.000	4.697	5.167	4.462
53	520.000	4.777	5.254	4.538

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 3.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.174	.192	.166
3	20.000	.318	.349	.302
4	30.000	.451	.497	.429
5	40.000	.579	.637	.550
6	50.000	.703	.773	.668
7	60.000	.823	.906	.782
8	70.000	.941	1.035	.894
9	80.000	1.056	1.162	1.004
10	90.000	1.170	1.287	1.111
11	100.000	1.282	1.410	1.218
12	110.000	1.392	1.531	1.322
13	120.000	1.501	1.651	1.426
14	130.000	1.609	1.770	1.528
15	140.000	1.716	1.887	1.630
16	150.000	1.821	2.003	1.730
17	160.000	1.926	2.119	1.830
18	170.000	2.030	2.233	1.929
19	180.000	2.133	2.346	2.026
20	190.000	2.235	2.459	2.124
21	200.000	2.337	2.571	2.220
22	210.000	2.438	2.682	2.316
23	220.000	2.538	2.792	2.411
24	230.000	2.638	2.902	2.506
25	240.000	2.737	3.011	2.600
26	250.000	2.836	3.119	2.694
27	260.000	2.934	3.227	2.787
28	270.000	3.031	3.334	2.880
29	280.000	3.128	3.441	2.972
30	290.000	3.225	3.547	3.064
31	300.000	3.321	3.653	3.155
32	310.000	3.417	3.758	3.246
33	320.000	3.512	3.863	3.336
34	330.000	3.607	3.968	3.427
35	340.000	3.701	4.072	3.516
36	350.000	3.796	4.175	3.606
37	360.000	3.889	4.278	3.695
38	370.000	3.983	4.381	3.784
39	380.000	4.076	4.484	3.872
40	390.000	4.169	4.586	3.960
41	400.000	4.261	4.687	4.048
42	410.000	4.353	4.789	4.136
43	420.000	4.445	4.890	4.223
44	430.000	4.537	4.991	4.310
45	440.000	4.628	5.091	4.397
46	450.000	4.719	5.191	4.483
47	460.000	4.810	5.291	4.570
48	470.000	4.900	5.391	4.655
49	480.000	4.991	5.490	4.741
50	490.000	5.081	5.589	4.827
51	500.000	5.170	5.687	4.912
52	510.000	5.260	5.786	4.997
53	520.000	5.349	5.884	5.082

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 4.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.189	.208	.179
3	20.000	.344	.379	.327
4	30.000	.489	.538	.465
5	40.000	.628	.691	.596
6	50.000	.762	.838	.724
7	60.000	.892	.981	.848
8	70.000	1.020	1.122	.969
9	80.000	1.145	1.259	1.087
10	90.000	1.268	1.394	1.204
11	100.000	1.389	1.528	1.319
12	110.000	1.509	1.659	1.433
13	120.000	1.627	1.789	1.545
14	130.000	1.744	1.918	1.656
15	140.000	1.859	2.045	1.766
16	150.000	1.974	2.171	1.875
17	160.000	2.087	2.296	1.983
18	170.000	2.200	2.420	2.090
19	180.000	2.312	2.543	2.196
20	190.000	2.422	2.665	2.301
21	200.000	2.533	2.786	2.406
22	210.000	2.642	2.906	2.510
23	220.000	2.751	3.026	2.613
24	230.000	2.859	3.145	2.716
25	240.000	2.966	3.263	2.818
26	250.000	3.073	3.380	2.919
27	260.000	3.179	3.497	3.020
28	270.000	3.285	3.613	3.121
29	280.000	3.390	3.729	3.220
30	290.000	3.495	3.844	3.320
31	300.000	3.599	3.959	3.419
32	310.000	3.703	4.073	3.517
33	320.000	3.806	4.186	3.616
34	330.000	3.909	4.300	3.713
35	340.000	4.011	4.412	3.811
36	350.000	4.113	4.525	3.908
37	360.000	4.215	4.636	4.004
38	370.000	4.316	4.748	4.100
39	380.000	4.417	4.859	4.196
40	390.000	4.518	4.969	4.292
41	400.000	4.618	5.080	4.387
42	410.000	4.718	5.189	4.482
43	420.000	4.817	5.299	4.576
44	430.000	4.916	5.408	4.671
45	440.000	5.015	5.517	4.765
46	450.000	5.114	5.625	4.858
47	460.000	5.212	5.734	4.952
48	470.000	5.310	5.842	5.045
49	480.000	5.408	5.949	5.138
50	490.000	5.506	6.056	5.230
51	500.000	5.603	6.163	5.323
52	510.000	5.700	6.270	5.415
53	520.000	5.797	6.376	5.507

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 5.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.201	.221	.191
3	20.000	.366	.403	.348
4	30.000	.521	.573	.495
5	40.000	.668	.735	.635
6	50.000	.811	.892	.770
7	60.000	.949	1.044	.902
8	70.000	1.085	1.194	1.031
9	80.000	1.218	1.340	1.157
10	90.000	1.349	1.484	1.282
11	100.000	1.478	1.626	1.404
12	110.000	1.606	1.766	1.525
13	120.000	1.731	1.904	1.645
14	130.000	1.856	2.041	1.763
15	140.000	1.979	2.177	1.880
16	150.000	2.101	2.311	1.996
17	160.000	2.221	2.444	2.110
18	170.000	2.341	2.575	2.224
19	180.000	2.460	2.706	2.337
20	190.000	2.578	2.836	2.449
21	200.000	2.695	2.965	2.561
22	210.000	2.812	3.093	2.671
23	220.000	2.927	3.220	2.781
24	230.000	3.042	3.347	2.890
25	240.000	3.157	3.472	2.999
26	250.000	3.270	3.597	3.107
27	260.000	3.384	3.722	3.214
28	270.000	3.496	3.846	3.321
29	280.000	3.608	3.969	3.428
30	290.000	3.719	4.091	3.533
31	300.000	3.830	4.213	3.639
32	310.000	3.941	4.335	3.744
33	320.000	4.051	4.456	3.848
34	330.000	4.160	4.576	3.952
35	340.000	4.269	4.696	4.056
36	350.000	4.378	4.815	4.159
37	360.000	4.486	4.934	4.262
38	370.000	4.594	5.053	4.364
39	380.000	4.701	5.171	4.466
40	390.000	4.808	5.289	4.568
41	400.000	4.915	5.406	4.669
42	410.000	5.021	5.523	4.770
43	420.000	5.127	5.640	4.871
44	430.000	5.233	5.756	4.971
45	440.000	5.338	5.872	5.071
46	450.000	5.443	5.987	5.171
47	460.000	5.548	6.102	5.270
48	470.000	5.652	6.217	5.369
49	480.000	5.756	6.332	5.468
50	490.000	5.860	6.446	5.567
51	500.000	5.963	6.560	5.665
52	510.000	6.066	6.673	5.763
53	520.000	6.169	6.786	5.861

PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 6.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.211	.233	.201
3	20.000	.386	.424	.366
4	30.000	.548	.603	.521
5	40.000	.703	.773	.668
6	50.000	.853	.938	.810
7	60.000	.999	1.099	.949
8	70.000	1.142	1.256	1.085
9	80.000	1.282	1.410	1.218
10	90.000	1.420	1.562	1.349
11	100.000	1.555	1.711	1.478
12	110.000	1.689	1.858	1.605
13	120.000	1.822	2.004	1.731
14	130.000	1.953	2.148	1.855
15	140.000	2.082	2.290	1.978
16	150.000	2.210	2.431	2.100
17	160.000	2.337	2.571	2.221
18	170.000	2.464	2.710	2.340
19	180.000	2.589	2.848	2.459
20	190.000	2.713	2.984	2.577
21	200.000	2.836	3.120	2.694
22	210.000	2.959	3.255	2.811
23	220.000	3.080	3.388	2.926
24	230.000	3.201	3.522	3.041
25	240.000	3.322	3.654	3.156
26	250.000	3.441	3.785	3.269
27	260.000	3.560	3.916	3.382
28	270.000	3.679	4.046	3.495
29	280.000	3.796	4.176	3.607
30	290.000	3.914	4.305	3.718
31	300.000	4.030	4.433	3.829
32	310.000	4.146	4.561	3.939
33	320.000	4.262	4.688	4.049
34	330.000	4.377	4.815	4.158
35	340.000	4.492	4.941	4.267
36	350.000	4.606	5.067	4.376
37	360.000	4.720	5.192	4.484
38	370.000	4.834	5.317	4.592
39	380.000	4.947	5.441	4.699
40	390.000	5.059	5.565	4.806
41	400.000	5.171	5.689	4.913
42	410.000	5.283	5.812	5.019
43	420.000	5.395	5.934	5.125
44	430.000	5.506	6.057	5.231
45	440.000	5.617	6.178	5.336
46	450.000	5.727	6.300	5.441
47	460.000	5.837	6.421	5.545
48	470.000	5.947	6.542	5.650
49	480.000	6.057	6.662	5.754
50	490.000	6.166	6.782	5.858
51	500.000	6.275	6.902	5.961
52	510.000	6.383	7.022	6.064
53	520.000	6.492	7.141	6.167

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 7.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.221	.243	.210
3	20.000	.403	.443	.382
4	30.000	.572	.629	.543
5	40.000	.734	.807	.697
6	50.000	.891	.980	.846
7	60.000	1.043	1.147	.991
8	70.000	1.192	1.311	1.132
9	80.000	1.338	1.472	1.271
10	90.000	1.482	1.630	1.408
11	100.000	1.624	1.786	1.543
12	110.000	1.764	1.940	1.676
13	120.000	1.902	2.092	1.807
14	130.000	2.038	2.242	1.937
15	140.000	2.174	2.391	2.065
16	150.000	2.308	2.538	2.192
17	160.000	2.440	2.684	2.318
18	170.000	2.572	2.829	2.443
19	180.000	2.703	2.973	2.567
20	190.000	2.832	3.115	2.691
21	200.000	2.961	3.257	2.813
22	210.000	3.089	3.398	2.934
23	220.000	3.216	3.537	3.055
24	230.000	3.342	3.676	3.175
25	240.000	3.468	3.815	3.294
26	250.000	3.593	3.952	3.413
27	260.000	3.717	4.089	3.531
28	270.000	3.840	4.224	3.648
29	280.000	3.963	4.360	3.765
30	290.000	4.086	4.494	3.881
31	300.000	4.208	4.628	3.997
32	310.000	4.329	4.762	4.112
33	320.000	4.450	4.895	4.227
34	330.000	4.570	5.027	4.341
35	340.000	4.690	5.159	4.455
36	350.000	4.809	5.290	4.569
37	360.000	4.928	5.421	4.681
38	370.000	5.046	5.551	4.794
39	380.000	5.164	5.681	4.906
40	390.000	5.282	5.810	5.018
41	400.000	5.399	5.939	5.129
42	410.000	5.516	6.067	5.240
43	420.000	5.632	6.195	5.351
44	430.000	5.748	6.323	5.461
45	440.000	5.864	6.450	5.571
46	450.000	5.979	6.577	5.680
47	460.000	6.094	6.704	5.789
48	470.000	6.209	6.830	5.898
49	480.000	6.323	6.955	6.007
50	490.000	6.437	7.081	6.115
51	500.000	6.551	7.206	6.223
52	510.000	6.664	7.331	6.331
53	520.000	6.777	7.455	6.438

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 8.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.229	.252	.218
3	20.000	.418	.460	.397
4	30.000	.594	.653	.564
5	40.000	.762	.838	.724
6	50.000	.924	1.017	.878
7	60.000	1.083	1.191	1.029
8	70.000	1.237	1.361	1.176
9	80.000	1.389	1.528	1.320
10	90.000	1.538	1.692	1.462
11	100.000	1.686	1.854	1.601
12	110.000	1.831	2.014	1.739
13	120.000	1.974	2.171	1.875
14	130.000	2.116	2.327	2.010
15	140.000	2.256	2.482	2.143
16	150.000	2.395	2.635	2.275
17	160.000	2.533	2.786	2.406
18	170.000	2.670	2.937	2.536
19	180.000	2.805	3.086	2.665
20	190.000	2.940	3.234	2.793
21	200.000	3.073	3.381	2.920
22	210.000	3.206	3.527	3.046
23	220.000	3.338	3.672	3.171
24	230.000	3.469	3.816	3.296
25	240.000	3.600	3.959	3.420
26	250.000	3.729	4.102	3.543
27	260.000	3.858	4.244	3.665
28	270.000	3.986	4.385	3.787
29	280.000	4.114	4.525	3.908
30	290.000	4.241	4.665	4.029
31	300.000	4.367	4.804	4.149
32	310.000	4.493	4.943	4.269
33	320.000	4.619	5.081	4.388
34	330.000	4.744	5.218	4.506
35	340.000	4.868	5.355	4.624
36	350.000	4.992	5.491	4.742
37	360.000	5.115	5.627	4.859
38	370.000	5.238	5.762	4.976
39	380.000	5.360	5.896	5.092
40	390.000	5.482	6.031	5.208
41	400.000	5.604	6.164	5.324
42	410.000	5.725	6.298	5.439
43	420.000	5.846	6.431	5.554
44	430.000	5.967	6.563	5.668
45	440.000	6.087	6.695	5.782
46	450.000	6.206	6.827	5.896
47	460.000	6.326	6.958	6.009
48	470.000	6.445	7.089	6.122
49	480.000	6.563	7.220	6.235
50	490.000	6.682	7.350	6.348
51	500.000	6.800	7.480	6.460
52	510.000	6.917	7.609	6.571
53	520.000	7.035	7.738	6.683

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 9.000

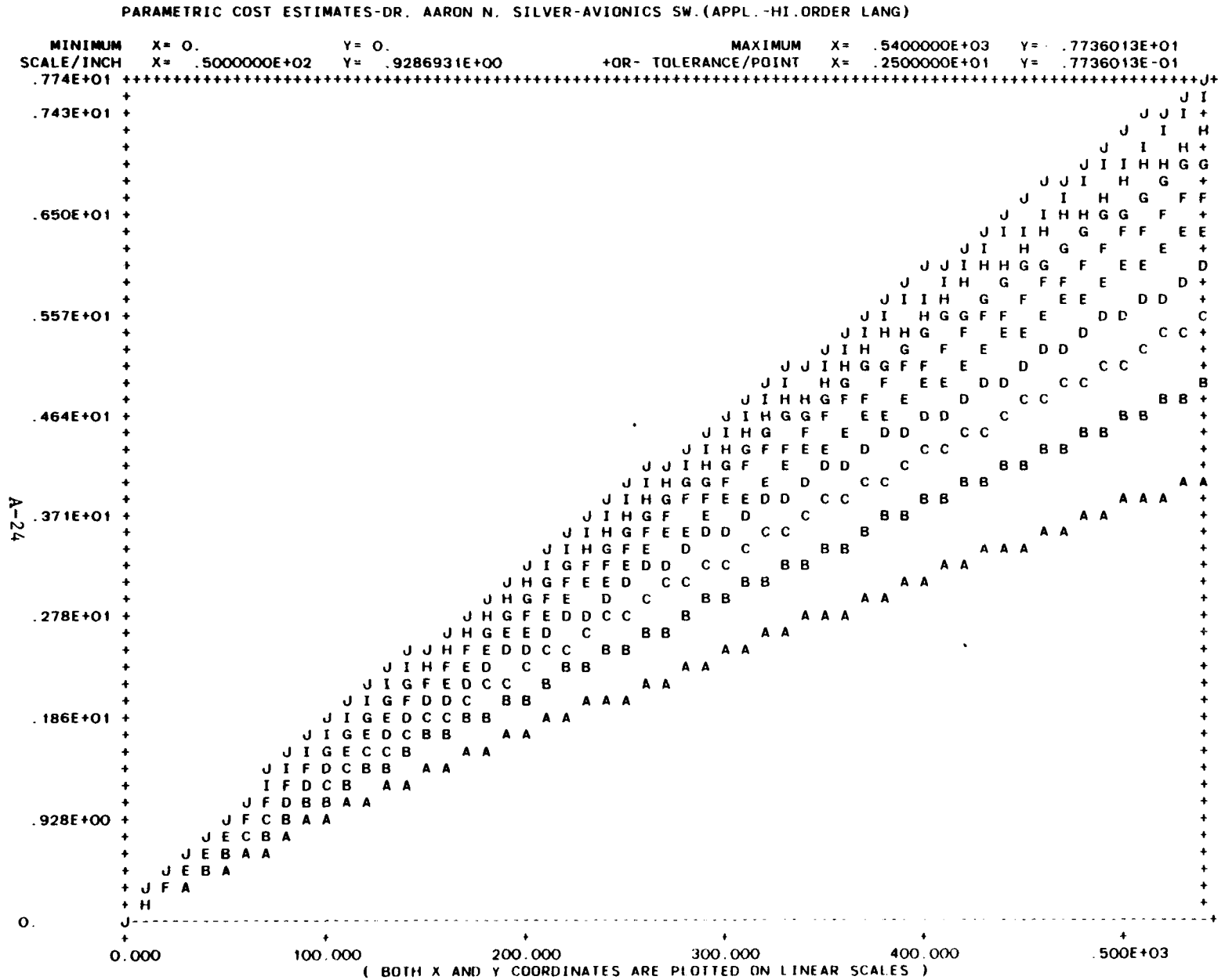
NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.237	.260	.225
3	20.000	.432	.475	.410
4	30.000	.614	.675	.583
5	40.000	.787	.866	.748
6	50.000	.955	1.051	.908
7	60.000	1.119	1.231	1.063
8	70.000	1.279	1.407	1.215
9	80.000	1.436	1.579	1.364
10	90.000	1.590	1.749	1.510
11	100.000	1.742	1.916	1.655
12	110.000	1.892	2.081	1.797
13	120.000	2.040	2.244	1.938
14	130.000	2.187	2.405	2.077
15	140.000	2.332	2.565	2.215
16	150.000	2.475	2.723	2.352
17	160.000	2.618	2.880	2.487
18	170.000	2.759	3.035	2.621
19	180.000	2.899	3.189	2.754
20	190.000	3.038	3.342	2.886
21	200.000	3.176	3.494	3.017
22	210.000	3.313	3.645	3.148
23	220.000	3.450	3.795	3.277
24	230.000	3.585	3.944	3.406
25	240.000	3.720	4.092	3.534
26	250.000	3.854	4.239	3.661
27	260.000	3.987	4.386	3.788
28	270.000	4.120	4.532	3.914
29	280.000	4.252	4.677	4.039
30	290.000	4.383	4.821	4.164
31	300.000	4.514	4.965	4.288
32	310.000	4.644	5.108	4.411
33	320.000	4.773	5.250	4.534
34	330.000	4.902	5.392	4.657
35	340.000	5.031	5.534	4.779
36	350.000	5.159	5.674	4.901
37	360.000	5.286	5.815	5.022
38	370.000	5.413	5.954	5.142
39	380.000	5.540	6.094	5.263
40	390.000	5.666	6.232	5.382
41	400.000	5.791	6.371	5.502
42	410.000	5.917	6.508	5.621
43	420.000	6.042	6.646	5.740
44	430.000	6.166	6.783	5.858
45	440.000	6.290	6.919	5.976
46	450.000	6.414	7.055	6.093
47	460.000	6.537	7.191	6.210
48	470.000	6.660	7.326	6.327
49	480.000	6.783	7.461	6.444
50	490.000	6.905	7.596	6.560
51	500.000	7.027	7.730	6.676
52	510.000	7.149	7.864	6.791
53	520.000	7.270	7.997	6.906

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG) ----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

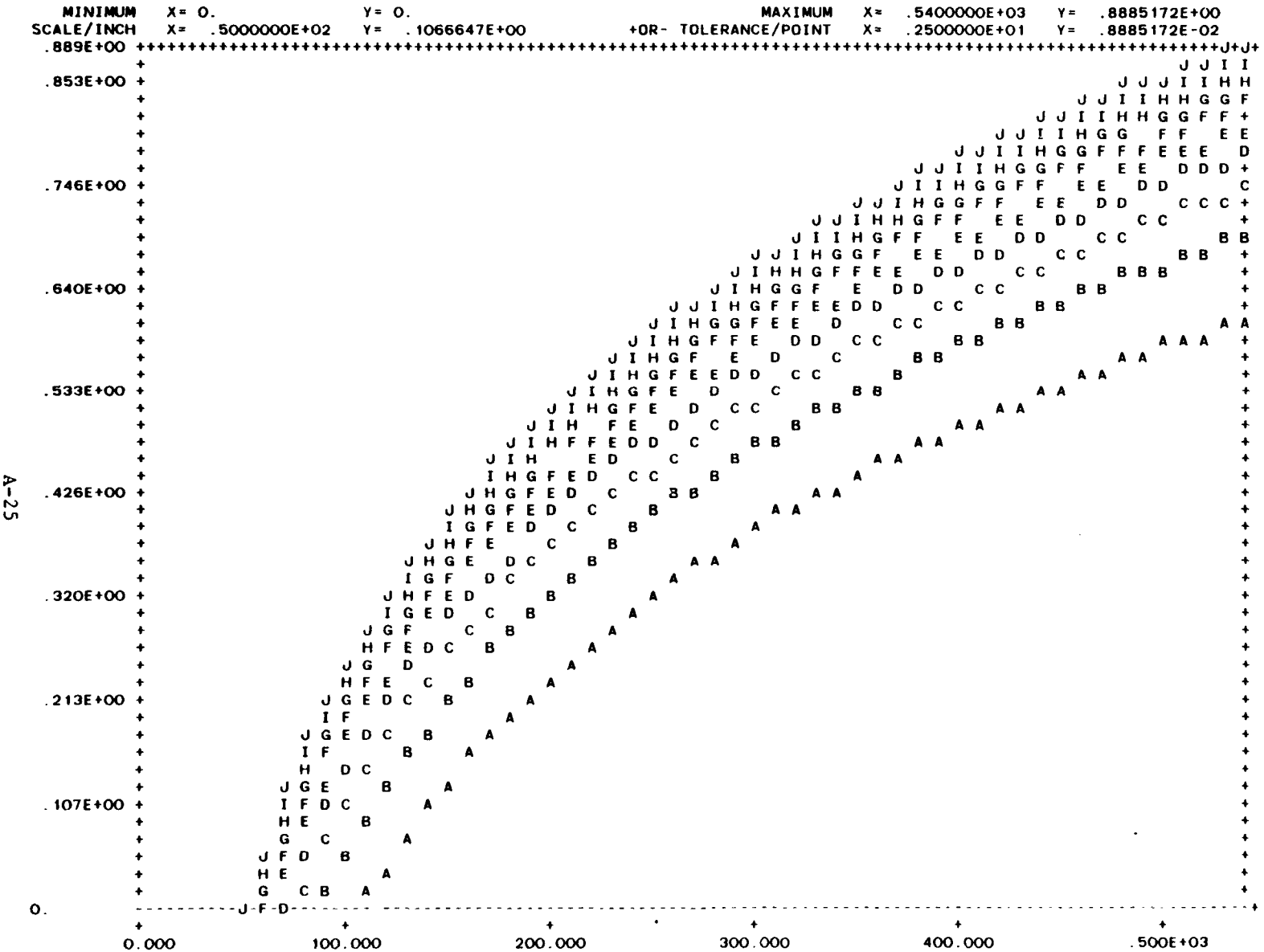
OUTER LOOP PARAMETER= 1.000
INNER LOOP PARAMETER= 10.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	10.000	.244	.268	.232
3	20.000	.445	.489	.422
4	30.000	.632	.695	.600
5	40.000	.811	.892	.770
6	50.000	.984	1.082	.935
7	60.000	1.152	1.267	1.095
8	70.000	1.317	1.449	1.251
9	80.000	1.479	1.626	1.405
10	90.000	1.637	1.801	1.556
11	100.000	1.794	1.973	1.704
12	110.000	1.948	2.143	1.851
13	120.000	2.101	2.311	1.996
14	130.000	2.252	2.477	2.139
15	140.000	2.401	2.641	2.281
16	150.000	2.549	2.804	2.422
17	160.000	2.696	2.965	2.561
18	170.000	2.841	3.125	2.699
19	180.000	2.986	3.284	2.836
20	190.000	3.129	3.442	2.972
21	200.000	3.271	3.598	3.108
22	210.000	3.412	3.754	3.242
23	220.000	3.553	3.908	3.375
24	230.000	3.692	4.061	3.508
25	240.000	3.831	4.214	3.639
26	250.000	3.969	4.366	3.770
27	260.000	4.106	4.517	3.901
28	270.000	4.243	4.667	4.031
29	280.000	4.379	4.816	4.160
30	290.000	4.514	4.965	4.288
31	300.000	4.648	5.113	4.416
32	310.000	4.782	5.260	4.543
33	320.000	4.916	5.407	4.670
34	330.000	5.049	5.553	4.796
35	340.000	5.181	5.699	4.922
36	350.000	5.313	5.844	5.047
37	360.000	5.444	5.988	5.172
38	370.000	5.575	6.132	5.296
39	380.000	5.705	6.276	5.420
40	390.000	5.835	6.418	5.543
41	400.000	5.964	6.561	5.666
42	410.000	6.093	6.703	5.789
43	420.000	6.222	6.844	5.911
44	430.000	6.350	6.985	6.033
45	440.000	6.478	7.126	6.154
46	450.000	6.605	7.266	6.275
47	460.000	6.732	7.406	6.396
48	470.000	6.859	7.545	6.516
49	480.000	6.985	7.684	6.636
50	490.000	7.111	7.822	6.756
51	500.000	7.237	7.961	6.875
52	510.000	7.362	8.098	6.994
53	520.000	7.487	8.236	7.113



PLOT OF PRODUCTIVITY (HRS/LOC) VS. PROGRAM COMPLEXITY (MC=1 TO 10)

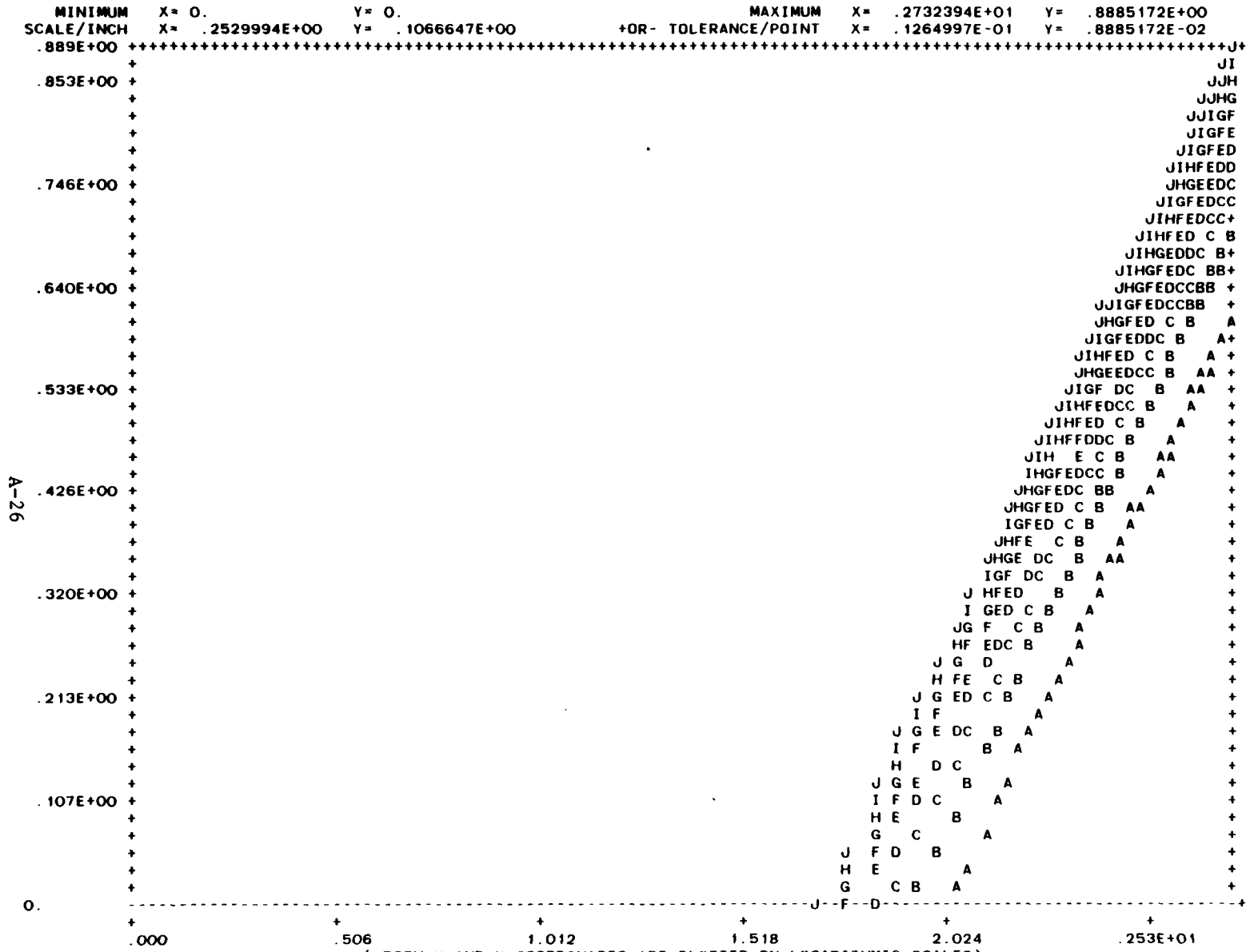
PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)



(X COORDINATE PLOTTED ON LINEAR SCALE, Y COORDINATE PLOTTED ON LOGARITHMIC SCALE)
INDEPENDENT VARIABLE-PROGRAM COMPLEXITY

PLOT OF PRODUCTIVITY (HRS/LOC) VS. PROGRAM COMPLEXITY (MC=1 TO 10)

PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)



PLOT OF PRODUCTIVITY (HRS/LOC) VS. PROGRAM COMPLEXITY (MC=1 TO 10)

==========OUTPUT COMPUTATIONS==========

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 200.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.105	.115	.099
3	.001	.209	.230	.199
4	.002	.314	.345	.298
5	.003	.419	.461	.398
6	.003	.523	.576	.497
7	.004	.628	.691	.597
8	.005	.733	.806	.696
9	.006	.838	.921	.796
10	.006	.942	1.036	.895
11	.007	1.047	1.152	.995
12	.008	1.152	1.267	1.094
13	.008	1.256	1.382	1.193
14	.009	1.361	1.497	1.293
15	.010	1.466	1.612	1.392
16	.010	1.570	1.727	1.492
17	.011	1.675	1.843	1.591
18	.012	1.780	1.958	1.691
19	.013	1.884	2.073	1.790
20	.013	1.989	2.188	1.890
21	.014	2.094	2.303	1.989
22	.015	2.198	2.418	2.089
23	.015	2.303	2.533	2.188
24	.016	2.408	2.649	2.287
25	.017	2.513	2.764	2.387
26	.017	2.617	2.879	2.486
27	.018	2.722	2.994	2.586
28	.019	2.827	3.109	2.685
29	.020	2.931	3.224	2.785
30	.020	3.036	3.340	2.884
31	.021	3.141	3.455	2.984
32	.022	3.245	3.570	3.083
33	.022	3.350	3.685	3.183
34	.023	3.455	3.800	3.282
35	.024	3.559	3.915	3.381
36	.024	3.664	4.031	3.481
37	.025	3.769	4.146	3.580
38	.026	3.874	4.261	3.680
39	.026	3.978	4.376	3.779
40	.027	4.083	4.491	3.879
41	.028	4.188	4.606	3.978
42	.029	4.292	4.721	4.078
43	.029	4.397	4.837	4.177
44	.030	4.502	4.952	4.277
45	.031	4.606	5.067	4.376
46	.031	4.711	5.182	4.475
47	.032	4.816	5.297	4.575
48	.033	4.920	5.412	4.674
49	.033	5.025	5.528	4.774

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 250.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.127	.140	.121
3	.001	.254	.279	.241
4	.002	.381	.419	.362
5	.003	.508	.559	.483
6	.003	.635	.699	.603
7	.004	.762	.838	.724
8	.005	.889	.978	.845
9	.006	1.016	1.118	.965
10	.006	1.143	1.258	1.086
11	.007	1.270	1.397	1.207
12	.008	1.397	1.537	1.327
13	.008	1.524	1.677	1.448
14	.009	1.651	1.816	1.569
15	.010	1.778	1.956	1.689
16	.010	1.905	2.096	1.810
17	.011	2.032	2.236	1.931
18	.012	2.159	2.375	2.051
19	.013	2.286	2.515	2.172
20	.013	2.413	2.655	2.293
21	.014	2.540	2.795	2.413
22	.015	2.668	2.934	2.534
23	.015	2.795	3.074	2.655
24	.016	2.922	3.214	2.775
25	.017	3.049	3.353	2.896
26	.017	3.176	3.493	3.017
27	.018	3.303	3.633	3.137
28	.019	3.430	3.773	3.258
29	.020	3.557	3.912	3.379
30	.020	3.684	4.052	3.500
31	.021	3.811	4.192	3.620
32	.022	3.938	4.332	3.741
33	.022	4.065	4.471	3.862
34	.023	4.192	4.611	3.982
35	.024	4.319	4.751	4.103
36	.024	4.446	4.890	4.224
37	.025	4.573	5.030	4.344
38	.026	4.700	5.170	4.465
39	.026	4.827	5.310	4.586
40	.027	4.954	5.449	4.706
41	.028	5.081	5.589	4.827
42	.029	5.208	5.729	4.948
43	.029	5.335	5.869	5.068
44	.030	5.462	6.008	5.189
45	.031	5.589	6.148	5.310
46	.031	5.716	6.288	5.430
47	.032	5.843	6.427	5.551
48	.033	5.970	6.567	5.672
49	.033	6.097	6.707	5.792
50	.034	6.224	6.847	5.913
51	.035	6.351	6.986	6.034
52	.036	6.478	7.126	6.154
53	.036	6.605	7.266	6.275

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 300.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.149	.164	.141
3	.001	.298	.327	.283
4	.002	.446	.491	.424
5	.003	.595	.655	.565
6	.003	.744	.818	.707
7	.004	.893	.982	.848
8	.005	1.041	1.146	.989
9	.006	1.190	1.309	1.131
10	.006	1.339	1.473	1.272
11	.007	1.488	1.636	1.413
12	.008	1.636	1.800	1.555
13	.008	1.785	1.964	1.696
14	.009	1.934	2.127	1.837
15	.010	2.083	2.291	1.979
16	.010	2.232	2.455	2.120
17	.011	2.380	2.618	2.261
18	.012	2.529	2.782	2.403
19	.013	2.678	2.946	2.544
20	.013	2.827	3.109	2.685
21	.014	2.975	3.273	2.827
22	.015	3.124	3.437	2.968
23	.015	3.273	3.600	3.109
24	.016	3.422	3.764	3.251
25	.017	3.570	3.927	3.392
26	.017	3.719	4.091	3.533
27	.018	3.868	4.255	3.675
28	.019	4.017	4.418	3.816
29	.020	4.165	4.582	3.957
30	.020	4.314	4.746	4.099
31	.021	4.463	4.909	4.240
32	.022	4.612	5.073	4.381
33	.022	4.761	5.237	4.523
34	.023	4.909	5.400	4.664
35	.024	5.058	5.564	4.805
36	.024	5.207	5.728	4.947
37	.025	5.356	5.891	5.088
38	.026	5.504	6.055	5.229
39	.026	5.653	6.218	5.370
40	.027	5.802	6.382	5.512
41	.028	5.951	6.546	5.653
42	.029	6.099	6.709	5.794
43	.029	6.248	6.873	5.936
44	.030	6.397	7.037	6.077
45	.031	6.546	7.200	6.218
46	.031	6.695	7.364	6.360
47	.032	6.843	7.528	6.501
48	.033	6.992	7.691	6.642
49	.033	7.141	7.855	6.784
50	.034	7.290	8.019	6.925
51	.035	7.438	8.182	7.066
52	.036	7.587	8.346	7.208
53	.036	7.736	8.509	7.349

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 350.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.170	.187	.162
3	.001	.340	.374	.323
4	.002	.510	.561	.485
5	.003	.680	.748	.646
6	.003	.850	.935	.808
7	.004	1.020	1.122	.969
8	.005	1.190	1.309	1.131
9	.006	1.360	1.496	1.292
10	.006	1.530	1.683	1.454
11	.007	1.700	1.870	1.615
12	.008	1.870	2.057	1.777
13	.008	2.040	2.244	1.938
14	.009	2.210	2.431	2.100
15	.010	2.380	2.618	2.261
16	.010	2.550	2.805	2.423
17	.011	2.720	2.993	2.584
18	.012	2.890	3.180	2.746
19	.013	3.061	3.367	2.908
20	.013	3.231	3.554	3.069
21	.014	3.401	3.741	3.231
22	.015	3.571	3.928	3.392
23	.015	3.741	4.115	3.554
24	.016	3.911	4.302	3.715
25	.017	4.081	4.489	3.877
26	.017	4.251	4.676	4.038
27	.018	4.421	4.863	4.200
28	.019	4.591	5.050	4.361
29	.020	4.761	5.237	4.523
30	.020	4.931	5.424	4.684
31	.021	5.101	5.611	4.846
32	.022	5.271	5.798	5.007
33	.022	5.441	5.985	5.169
34	.023	5.611	6.172	5.330
35	.024	5.781	6.359	5.492
36	.024	5.951	6.546	5.653
37	.025	6.121	6.733	5.815
38	.026	6.291	6.920	5.977
39	.026	6.461	7.107	6.138
40	.027	6.631	7.294	6.300
41	.028	6.801	7.481	6.461
42	.029	6.971	7.668	6.623
43	.029	7.141	7.855	6.784
44	.030	7.311	8.042	6.946
45	.031	7.481	8.229	7.107
46	.031	7.651	8.416	7.269
47	.032	7.821	8.603	7.430
48	.033	7.991	8.791	7.592
49	.033	8.161	8.978	7.753
50	.034	8.331	9.165	7.915
51	.035	8.501	9.352	8.076
52	.036	8.671	9.539	8.238
53	.036	8.842	9.726	8.399

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 400.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.191	.210	.181
3	.001	.382	.420	.363
4	.002	.573	.630	.544
5	.003	.764	.840	.725
6	.003	.954	1.050	.907
7	.004	1.145	1.260	1.088
8	.005	1.336	1.470	1.269
9	.006	1.527	1.680	1.451
10	.006	1.718	1.890	1.632
11	.007	1.909	2.100	1.813
12	.008	2.100	2.310	1.995
13	.008	2.291	2.520	2.176
14	.009	2.482	2.730	2.357
15	.010	2.672	2.940	2.539
16	.010	2.863	3.150	2.720
17	.011	3.054	3.360	2.902
18	.012	3.245	3.570	3.083
19	.013	3.436	3.780	3.264
20	.013	3.627	3.990	3.446
21	.014	3.818	4.200	3.627
22	.015	4.009	4.410	3.808
23	.015	4.200	4.620	3.990
24	.016	4.390	4.829	4.171
25	.017	4.581	5.039	4.352
26	.017	4.772	5.249	4.534
27	.018	4.963	5.459	4.715
28	.019	5.154	5.669	4.896
29	.020	5.345	5.879	5.078
30	.020	5.536	6.089	5.259
31	.021	5.727	6.299	5.440
32	.022	5.918	6.509	5.622
33	.022	6.108	6.719	5.803
34	.023	6.299	6.929	5.984
35	.024	6.490	7.139	6.166
36	.024	6.681	7.349	6.347
37	.025	6.872	7.559	6.528
38	.026	7.063	7.769	6.710
39	.026	7.254	7.979	6.891
40	.027	7.445	8.189	7.072
41	.028	7.636	8.399	7.254
42	.029	7.826	8.609	7.435
43	.029	8.017	8.819	7.616
44	.030	8.208	9.029	7.798
45	.031	8.399	9.239	7.979
46	.031	8.590	9.449	8.161
47	.032	8.781	9.659	8.342
48	.033	8.972	9.869	8.523
49	.033	9.163	10.079	8.705
50	.034	9.354	10.289	8.886
51	.035	9.544	10.499	9.067
52	.036	9.735	10.709	9.249
53	.036	9.926	10.919	9.430

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 450.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.211	.233	.201
3	.001	.423	.465	.402
4	.002	.634	.698	.602
5	.003	.846	.930	.803
6	.003	1.057	1.163	1.004
7	.004	1.268	1.395	1.205
8	.005	1.480	1.628	1.406
9	.006	1.691	1.860	1.607
10	.006	1.903	2.093	1.807
11	.007	2.114	2.325	2.008
12	.008	2.325	2.558	2.209
13	.008	2.537	2.791	2.410
14	.009	2.748	3.023	2.611
15	.010	2.960	3.256	2.812
16	.010	3.171	3.488	3.012
17	.011	3.382	3.721	3.213
18	.012	3.594	3.953	3.414
19	.013	3.805	4.186	3.615
20	.013	4.017	4.418	3.816
21	.014	4.228	4.651	4.017
22	.015	4.439	4.883	4.217
23	.015	4.651	5.116	4.418
24	.016	4.862	5.348	4.619
25	.017	5.074	5.581	4.820
26	.017	5.285	5.814	5.021
27	.018	5.496	6.046	5.222
28	.019	5.708	6.279	5.422
29	.020	5.919	6.511	5.623
30	.020	6.131	6.744	5.824
31	.021	6.342	6.976	6.025
32	.022	6.553	7.209	6.226
33	.022	6.765	7.441	6.427
34	.023	6.976	7.674	6.627
35	.024	7.188	7.906	6.828
36	.024	7.399	8.139	7.029
37	.025	7.610	8.372	7.230
38	.026	7.822	8.604	7.431
39	.026	8.033	8.837	7.632
40	.027	8.245	9.069	7.832
41	.028	8.456	9.302	8.033
42	.029	8.668	9.534	8.234
43	.029	8.879	9.767	8.435
44	.030	9.090	9.999	8.636
45	.031	9.302	10.232	8.837
46	.031	9.513	10.464	9.037
47	.032	9.725	10.697	9.238
48	.033	9.936	10.930	9.439
49	.033	10.147	11.162	9.640
50	.034	10.359	11.395	9.841
51	.035	10.570	11.627	10.042
52	.036	10.782	11.860	10.242
53	.036	10.993	12.092	10.443

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 500.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.232	.255	.220
3	.001	.463	.510	.440
4	.002	.695	.764	.660
5	.003	.926	1.019	.880
6	.003	1.158	1.274	1.100
7	.004	1.390	1.529	1.320
8	.005	1.621	1.783	1.540
9	.006	1.853	2.038	1.760
10	.006	2.085	2.293	1.980
11	.007	2.316	2.548	2.200
12	.008	2.548	2.803	2.420
13	.008	2.779	3.057	2.640
14	.009	3.011	3.312	2.860
15	.010	3.243	3.567	3.080
16	.010	3.474	3.822	3.301
17	.011	3.706	4.076	3.521
18	.012	3.937	4.331	3.741
19	.013	4.169	4.586	3.961
20	.013	4.401	4.841	4.181
21	.014	4.632	5.096	4.401
22	.015	4.864	5.350	4.621
23	.015	5.096	5.605	4.841
24	.016	5.327	5.860	5.061
25	.017	5.559	6.115	5.281
26	.017	5.790	6.369	5.501
27	.018	6.022	6.624	5.721
28	.019	6.254	6.879	5.941
29	.020	6.485	7.134	6.161
30	.020	6.717	7.388	6.381
31	.021	6.948	7.643	6.601
32	.022	7.180	7.898	6.821
33	.022	7.412	8.153	7.041
34	.023	7.643	8.408	7.261
35	.024	7.875	8.662	7.481
36	.024	8.106	8.917	7.701
37	.025	8.338	9.172	7.921
38	.026	8.570	9.427	8.141
39	.026	8.801	9.681	8.361
40	.027	9.033	9.936	8.581
41	.028	9.265	10.191	8.801
42	.029	9.496	10.446	9.021
43	.029	9.728	10.701	9.241
44	.030	9.959	10.955	9.461
45	.031	10.191	11.210	9.681
46	.031	10.423	11.465	9.902
47	.032	10.654	11.720	10.122
48	.033	10.886	11.974	10.342
49	.033	11.117	12.229	10.562
50	.034	11.349	12.484	10.782
51	.035	11.581	12.739	11.002
52	.036	11.812	12.994	11.222
53	.036	12.044	13.248	11.442

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 550.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.252	.277	.239
3	.001	.503	.553	.478
4	.002	.755	.830	.717
5	.003	1.006	1.107	.956
6	.003	1.258	1.384	1.195
7	.004	1.509	1.660	1.434
8	.005	1.761	1.937	1.673
9	.006	2.012	2.214	1.912
10	.006	2.264	2.490	2.151
11	.007	2.516	2.767	2.390
12	.008	2.767	3.044	2.629
13	.008	3.019	3.321	2.868
14	.009	3.270	3.597	3.107
15	.010	3.522	3.874	3.346
16	.010	3.773	4.151	3.585
17	.011	4.025	4.427	3.824
18	.012	4.276	4.704	4.063
19	.013	4.528	4.981	4.302
20	.013	4.780	5.258	4.541
21	.014	5.031	5.534	4.780
22	.015	5.283	5.811	5.019
23	.015	5.534	6.088	5.258
24	.016	5.786	6.364	5.497
25	.017	6.037	6.641	5.736
26	.017	6.289	6.918	5.974
27	.018	6.540	7.195	6.213
28	.019	6.792	7.471	6.452
29	.020	7.044	7.748	6.691
30	.020	7.295	8.025	6.930
31	.021	7.547	8.301	7.169
32	.022	7.798	8.578	7.408
33	.022	8.050	8.855	7.647
34	.023	8.301	9.132	7.886
35	.024	8.553	9.408	8.125
36	.024	8.804	9.685	8.364
37	.025	9.056	9.962	8.603
38	.026	9.308	10.238	8.842
39	.026	9.559	10.515	9.081
40	.027	9.811	10.792	9.320
41	.028	10.062	11.069	9.559
42	.029	10.314	11.345	9.798
43	.029	10.565	11.622	10.037
44	.030	10.817	11.899	10.276
45	.031	11.069	12.175	10.515
46	.031	11.320	12.452	10.754
47	.032	11.572	12.729	10.993
48	.033	11.823	13.006	11.232
49	.03[illegible]	12.075	13.282	11.471
50	.034	12.326	13.559	11.710
51	.035	12.578	13.836	11.949
52	.036	12.829	14.112	12.188
53	.036	13.081	14.389	12.427

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 600.000

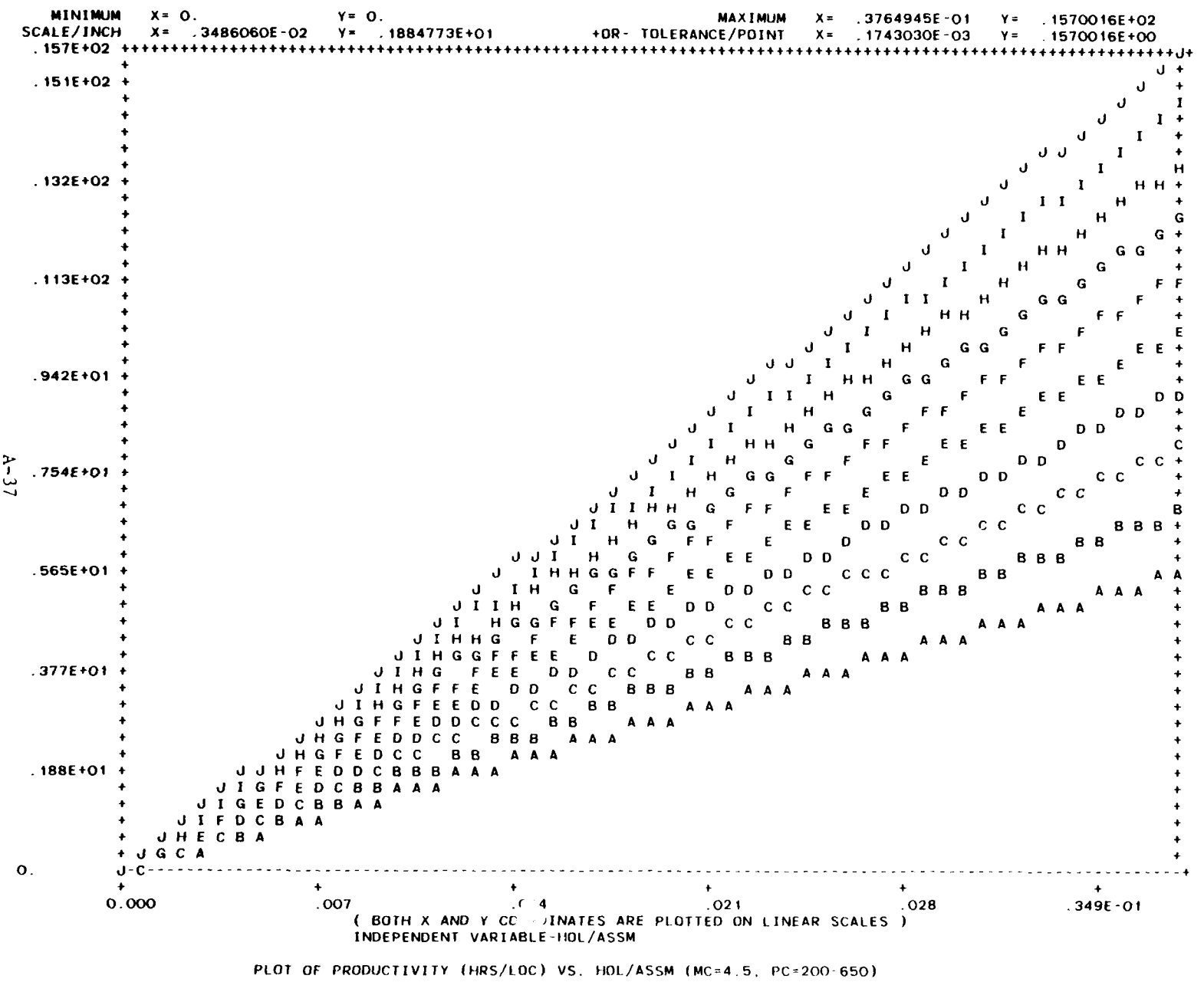
NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.271	.298	.258
3	.001	.543	.597	.515
4	.002	.814	.895	.773
5	.003	1.085	1.194	1.031
6	.003	1.356	1.492	1.288
7	.004	1.628	1.790	1.546
8	.005	1.899	2.089	1.804
9	.006	2.170	2.387	2.062
10	.006	2.441	2.685	2.319
11	.007	2.713	2.984	2.577
12	.008	2.984	3.282	2.835
13	.008	3.255	3.581	3.092
14	.009	3.526	3.879	3.350
15	.010	3.798	4.177	3.608
16	.010	4.069	4.476	3.865
17	.011	4.340	4.774	4.123
18	.012	4.611	5.073	4.381
19	.013	4.883	5.371	4.639
20	.013	5.154	5.669	4.896
21	.014	5.425	5.968	5.154
22	.015	5.696	6.266	5.412
23	.015	5.968	6.564	5.669
24	.016	6.239	6.863	5.927
25	.017	6.510	7.161	6.185
26	.017	6.781	7.460	6.442
27	.018	7.053	7.758	6.700
28	.019	7.324	8.056	6.958
29	.020	7.595	8.355	7.216
30	.020	7.867	8.653	7.473
31	.021	8.138	8.952	7.731
32	.022	8.409	9.250	7.989
33	.022	8.680	9.548	8.246
34	.023	8.952	9.847	8.504
35	.024	9.223	10.145	8.762
36	.024	9.494	10.443	9.019
37	.025	9.765	10.742	9.277
38	.026	10.037	11.040	9.535
39	.026	10.308	11.339	9.792
40	.027	10.579	11.637	10.050
41	.028	10.850	11.935	10.308
42	.029	11.122	12.234	10.566
43	.029	11.393	12.532	10.823
44	.030	11.664	12.831	11.081
45	.031	11.935	13.129	11.339
46	.031	12.207	13.427	11.596
47	.032	12.478	13.726	11.854
48	.033	12.749	14.024	12 112
49	.033	13.020	14.322	12.369
50	.034	13.292	14.621	12.627
51	.035	13.563	14.919	12.885
52	.036	13.834	15.218	13.143
53	.036	14.105	15.516	13.400

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

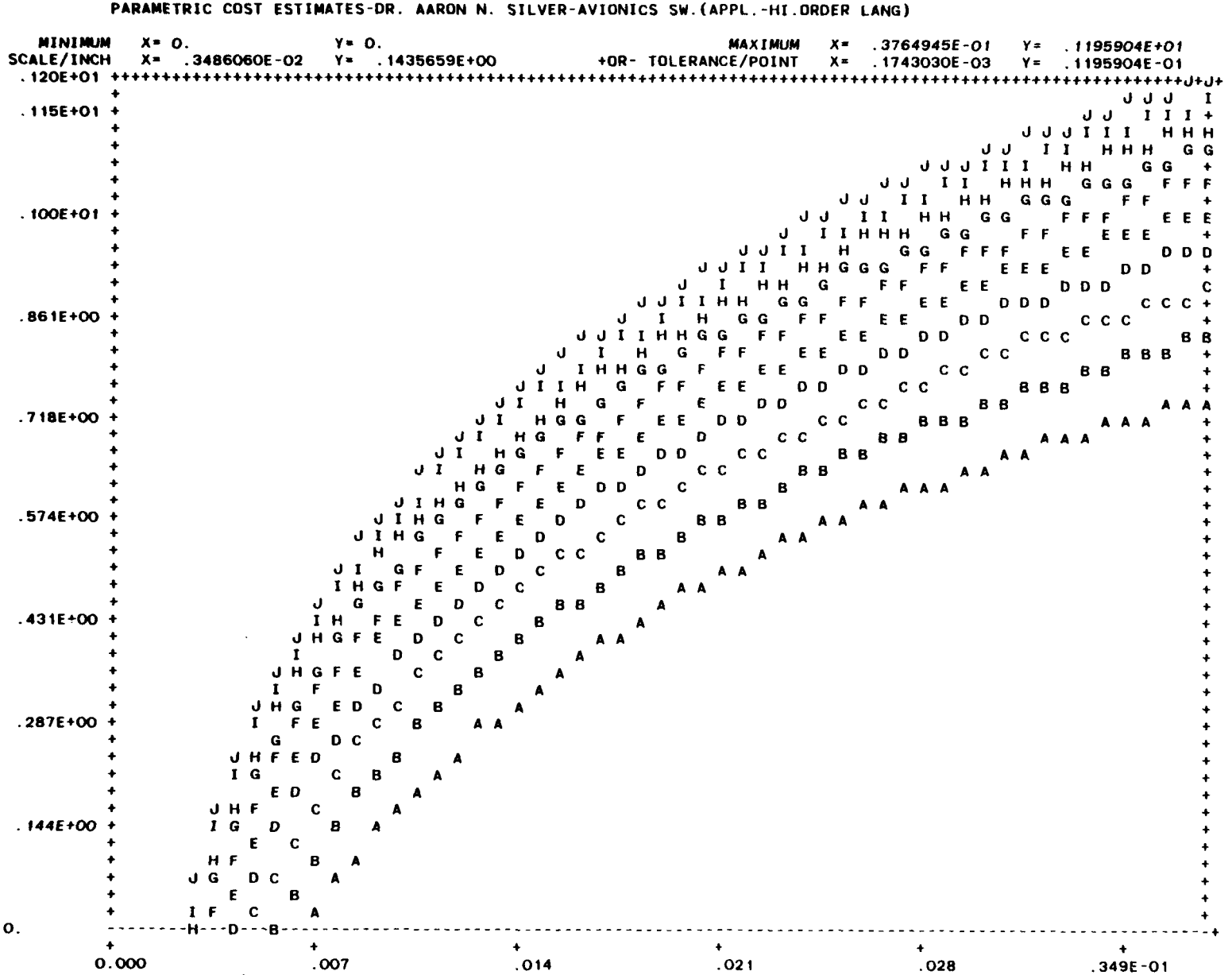
HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 650.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.001	.291	.320	.276
3	.001	.581	.640	.552
4	.002	.872	.959	.829
5	.003	1.163	1.279	1.105
6	.003	1.454	1.599	1.381
7	.004	1.744	1.919	1.657
8	.005	2.035	2.239	1.933
9	.006	2.326	2.559	2.210
10	.006	2.617	2.878	2.486
11	.007	2.907	3.198	2.762
12	.008	3.198	3.518	3.038
13	.008	3.489	3.838	3.314
14	.009	3.780	4.158	3.591
15	.010	4.070	4.477	3.867
16	.010	4.361	4.797	4.143
17	.011	4.652	5.117	4.419
18	.012	4.943	5.437	4.696
19	.013	5.233	5.757	4.972
20	.013	5.524	6.077	5.248
21	.014	5.815	6.396	5.524
22	.015	6.106	6.716	5.800
23	.015	6.396	7.036	6.077
24	.016	6.687	7.356	6.353
25	.017	6.978	7.676	6.629
26	.017	7.269	7.995	6.905
27	.018	7.559	8.315	7.181
28	.019	7.850	8.635	7.458
29	.020	8.141	8.955	7.734
30	.020	8.432	9.275	8.010
31	.021	8.722	9.595	8.286
32	.022	9.013	9.914	8.562
33	.022	9.304	10.234	8.839
34	.023	9.595	10.554	9.115
35	.024	9.885	10.874	9.391
36	.024	10.176	11.194	9.667
37	.025	10.467	11.513	9.943
38	.026	10.758	11.833	10.220
39	.026	11.048	12.153	10.496
40	.027	11.339	12.473	10.772
41	.028	11.630	12.793	11.048
42	.029	11.920	13.113	11.324
43	.029	12.211	13.432	11.601
44	.030	12.502	13.752	11.877
45	.031	12.793	14.072	12.153
46	.031	13.083	14.392	12.429
47	.032	13.374	14.712	12.706
48	.033	13.665	15.031	12.982
49	.033	13.956	15.351	13.258
50	.034	14.246	15.671	13.534
51	.035	14.537	15.991	13.810
52	.036	14.828	16.311	14.087
53	.036	15.119	16.631	14.363


PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)
MINIMUM X= 0. Y= 0. MAXIMUM X= .3764945E-01 Y= .1570016E+02
SCALE/INCH X= .3486060E-02 Y= .1884773E+01 +OR- TOLERANCE/POINT X= .1743030E-03 Y= .1570016E+00
.157E+02
.151E+02
.132E+02
.113E+02
.942E+01
.754E+01
.565E+01
.377E+01
.188E+01
0.
0.000
.007
.014
.021
.028
.349E-01
(BOTH X AND Y COORDINATES ARE PLOTTED ON LINEAR SCALES)
INDEPENDENT VARIABLE-HOL/ASSM
PLOT OF PRODUCTIVITY (HRS/LOC) VS. HOL/ASSM (MC=4.5, PC=200-650)

PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)



(X COORDINATE PLOTTED ON LINEAR SCALE, Y COORDINATE PLOTTED ON LOGARITHMIC SCALE)
INDEPENDENT VARIABLE-HOL/ASSM

PLOT OF PRODUCTIVITY (HRS/LOC) VS. HOL/ASSM (MC=4.5, PC=200-650)

++++++++++++++++++$$$$$$$$$$$$$$$$$$ PARAMETRIC TRADE ANALYSIS--DR. AARON N. SILVER--MOD. 9 $$$$$$$$$$$$$$$$$$++++++++++++++++++

==========PARAMETRIC TRADE ANALYSIS INPUT PARAMETERS==========

THE PARAMETRIC TRADE EQUATION IS OF THE FORM E1(I,J)=F(TC.R,V)
WHERE E1(I,J) IS THE INDEPENDENT VARIABLE
TC IS THE DEPENDENT VARIABLE
R IS THE INNER LOOP PARAMETER
V IS THE OUTER LOOP PARAMETER

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

OUTER LOOP PARAMETERS

OINITIAL	ODELTA	OMAXIM
4.500	1.000	4.500

INNER LOOP PARAMETERS

IINITIAL	IDELTA	IMAXIM
200.000	50.000	650.000

INDEPENDENT VARIABLE

XINITIAL	XDELTA	XMAXIM
0.000	.100	5.400

----------PLOT PARAMETER SETTINGS FOR PARAMETRIC TRADE ANALYSIS INPUT CONSTANTS----------

(KP = -1 KP1= 1 KP2= -1 KPO= 1 KPA= 1 KPB= 1 KPP= 1)
KP = -1 INDIVIDUAL CURVES NOT PLOTTED
KP1= 1 AGGREGATE CURVES PLOTTED
KPP= 1 ALL PLOTS OBTAINED(LIN./S-LOG/L-LOG)
KP2= -1 PERTURBATION CURVES NOT PLOTTED

----------PRINT PARAMETER SETTINGS FOR PARAMETRIC TRADE ANALYSIS INPUT CONSTANTS----------

(KPT= 1 KP3= 1 KP4= -1)
KPT= 1 ALL PRINTOUT OBTAINED
KP3= 1 PERTURBATION PRINTOUT OBTAINED
KP4= -1 INDIVIDUAL PRINTOUT NOT OBTAINED

----------CONFIGURATION MODE FOR PARAMETRIC TRADE ANALYSIS INPUT CONSTANTS----------

MULTIPLE VARIABLE ASYMPTOTIC REGRESSION ANALYSIS
CONSTANT TERM = .017
C3= 1.000 C4= .867 C5= .279
EQ. OF FORM Y= C2(TC.EX(C3)(R.EX(C4)(V.EX(C5)

==========OUTPUT COMPUTATIONS==========

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 200.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.262	.288	.249
3	.200	.523	.576	.497
4	.300	.785	.864	.746
5	.400	1.047	1.152	.995
6	.500	1.309	1.439	1.243
7	.600	1.570	1.727	1.492
8	.700	1.832	2.015	1.740
9	.800	2.094	2.303	1.989
10	.900	2.356	2.591	2.238
11	1.000	2.617	2.879	2.486
12	1.100	2.879	3.167	2.735
13	1.200	3.141	3.455	2.984
14	1.300	3.402	3.743	3.232
15	1.400	3.664	4.031	3.481
16	1.500	3.926	4.318	3.730
17	1.600	4.188	4.606	3.978
18	1.700	4.449	4.894	4.227
19	1.800	4.711	5.182	4.475
20	1.900	4.973	5.470	4.724
21	2.000	5.234	5.758	4.973
22	2.100	5.496	6.046	5.221
23	2.200	5.758	6.334	5.470
24	2.300	6.020	6.622	5.719
25	2.400	6.281	6.909	5.967
26	2.500	6.543	7.197	6.216
27	2.600	6.805	7.485	6.465
28	2.700	7.067	7.773	6.713
29	2.800	7.328	8.061	6.962
30	2.900	7.590	8.349	7.210
31	3.000	7.852	8.637	7.459
32	3.100	8.113	8.925	7.708
33	3.200	8.375	9.213	7.956
34	3.300	8.637	9.501	8.205
35	3.400	8.899	9.788	8.454
36	3.500	9.160	10.076	8.702
37	3.600	9.422	10.364	8.951
38	3.700	9.684	10.652	9.200
39	3.800	9.945	10.940	9.448
40	3.900	10.207	11.228	9.697
41	4.000	10.469	11.516	9.945
42	4.100	10.731	11.804	10.194
43	4.200	10.992	12.092	10.443
44	4.300	11.254	12.380	10.691
45	4.400	11.516	12.667	10.940
46	4.500	11.778	12.955	11.189
47	4.600	12.039	13.243	11.437
48	4.700	12.301	13.531	11.686
49	4.800	12.563	13.819	11.935
50	4.900	12.824	14.107	12.183

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 250.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.318	.349	.302
3	.200	.635	.699	.603
4	.300	.953	1.048	.905
5	.400	1.270	1.397	1.207
6	.500	1.588	1.747	1.508
7	.600	1.905	2.096	1.810
8	.700	2.223	2.445	2.112
9	.800	2.540	2.795	2.413
10	.900	2.858	3.144	2.715
11	1.000	3.176	3.493	3.017
12	1.100	3.493	3.842	3.319
13	1.200	3.811	4.192	3.620
14	1.300	4.128	4.541	3.922
15	1.400	4.446	4.890	4.224
16	1.500	4.763	5.240	4.525
17	1.600	5.081	5.589	4.827
18	1.700	5.399	5.938	5.129
19	1.800	5.716	6.288	5.430
20	1.900	6.034	6.637	5.732
21	2.000	6.351	6.986	6.034
22	2.100	6.669	7.336	6.335
23	2.200	6.986	7.685	6.637
24	2.300	7.304	8.034	6.939
25	2.400	7.621	8.384	7.240
26	2.500	7.939	8.733	7.542
27	2.600	8.257	9.082	7.844
28	2.700	8.574	9.432	8.145
29	2.800	8.892	9.781	8.447
30	2.900	9.209	10.130	8.749
31	3.000	9.527	10.479	9.050
32	3.100	9.844	10.829	9.352
33	3.200	10.162	11.178	9.654
34	3.300	10.479	11.527	9.956
35	3.400	10.797	11.877	10.257
36	3.500	11.115	12.226	10.559
37	3.600	11.432	12.575	10.861
38	3.700	11.750	12.925	11.162
39	3.800	12.067	13.274	11.464
40	3.900	12.385	13.623	11.766
41	4.000	12.702	13.973	12.067
42	4.100	13.020	14.322	12.369
43	4.200	13.338	14.671	12.671
44	4.300	13.655	15.021	12.972
45	4.400	13.973	15.370	13.274
46	4.500	14.290	15.719	13.576
47	4.600	14.608	16.069	13.877
48	4.700	14.925	16.418	14.179
49	4.800	15.243	16.767	14.481
50	4.900	15.560	17.117	14.782
51	5.000	15.878	17.466	15.084
52	5.100	16.196	17.815	15.386
53	5.200	16.513	18.164	15.687

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 300.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.372	.409	.353
3	.200	.744	.818	.707
4	.300	1.116	1.227	1.060
5	.400	1.488	1.636	1.413
6	.500	1.860	2.046	1.767
7	.600	2.232	2.455	2.120
8	.700	2.603	2.864	2.473
9	.800	2.975	3.273	2.827
10	.900	3.347	3.682	3.180
11	1.000	3.719	4.091	3.533
12	1.100	4.091	4.500	3.887
13	1.200	4.463	4.909	4.240
14	1.300	4.835	5.318	4.593
15	1.400	5.207	5.728	4.947
16	1.500	5.579	6.137	5.300
17	1.600	5.951	6.546	5.653
18	1.700	6.323	6.955	6.006
19	1.800	6.695	7.364	6.360
20	1.900	7.066	7.773	6.713
21	2.000	7.438	8.182	7.066
22	2.100	7.810	8.591	7.420
23	2.200	8.182	9.000	7.773
24	2.300	8.554	9.410	8.126
25	2.400	8.926	9.819	8.480
26	2.500	9.298	10.228	8.833
27	2.600	9.670	10.637	9.186
28	2.700	10.042	11.046	9.540
29	2.800	10.414	11.455	9.893
30	2.900	10.786	11.864	10.246
31	3.000	11.158	12.273	10.600
32	3.100	11.529	12.682	10.953
33	3.200	11.901	13.091	11.306
34	3.300	12.273	13.501	11.660
35	3.400	12.645	13.910	12.013
36	3.500	13.017	14.319	12.366
37	3.600	13.389	14.728	12.720
38	3.700	13.761	15.137	13.073
39	3.800	14.133	15.546	13.426
40	3.900	14.505	15.955	13.780
41	4.000	14.877	16.364	14.133
42	4.100	15.249	16.773	14.486
43	4.200	15.621	17.183	14.840
44	4.300	15.992	17.592	15.193
45	4.400	16.364	18.001	15.546
46	4.500	16.736	18.410	15.899
47	4.600	17.108	18.819	16.253
48	4.700	17.480	19.228	16.606
49	4.800	17.852	19.637	16.959
50	4.900	18.224	20.046	17.313
51	5.000	18.596	20.455	17.666
52	5.100	18.968	20.865	18.019
53	5.200	19.340	21.274	18.373

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 350.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.425	.468	.404
3	.200	.850	.935	.808
4	.300	1.275	1.403	1.211
5	.400	1.700	1.870	1.615
6	.500	2.125	2.338	2.019
7	.600	2.550	2.805	2.423
8	.700	2.976	3.273	2.827
9	.800	3.401	3.741	3.231
10	.900	3.826	4.208	3.634
11	1.000	4.251	4.676	4.038
12	1.100	4.676	5.143	4.442
13	1.200	5.101	5.611	4.846
14	1.300	5.526	6.079	5.250
15	1.400	5.951	6.546	5.653
16	1.500	6.376	7.014	6.057
17	1.600	6.801	7.481	6.461
18	1.700	7.226	7.949	6.865
19	1.800	7.651	8.416	7.269
20	1.900	8.076	8.884	7.673
21	2.000	8.501	9.352	8.076
22	2.100	8.927	9.819	8.480
23	2.200	9.352	10.287	8.884
24	2.300	9.777	10.754	9.288
25	2.400	10.202	11.222	9.692
26	2.500	10.627	11.690	10.095
27	2.600	11.052	12.157	10.499
28	2.700	11.477	12.625	10.903
29	2.800	11.902	13.092	11.307
30	2.900	12.327	13.560	11.711
31	3.000	12.752	14.027	12.115
32	3.100	13.177	14.495	12.518
33	3.200	13.602	14.963	12.922
34	3.300	14.027	15.430	13.326
35	3.400	14.452	15.898	13.730
36	3.500	14.878	16.365	14.134
37	3.600	15.303	16.833	14.538
38	3.700	15.728	17.300	14.941
39	3.800	16.153	17.768	15.345
40	3.900	16.578	18.236	15.749
41	4.000	17.003	18.703	16.153
42	4.100	17.428	19.171	16.557
43	4.200	17.853	19.638	16.960
44	4.300	18.278	20.106	17.364
45	4.400	18.703	20.574	17.768
46	4.500	19.128	21.041	18.172
47	4.600	19.553	21.509	18.576
48	4.700	19.978	21.976	18.980
49	4.800	20.404	22.444	19.383
50	4.900	20.829	22.911	19.787
51	5.000	21.254	23.379	20.191
52	5.100	21.679	23.847	20.595
53	5.200	22.104	24.314	20.999

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 400.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.477	.525	.453
3	.200	.954	1.050	.907
4	.300	1.432	1.575	1.360
5	.400	1.909	2.100	1.813
6	.500	2.386	2.625	2.267
7	.600	2.863	3.150	2.720
8	.700	3.341	3.675	3.174
9	.800	3.818	4.200	3.627
10	.900	4.295	4.725	4.080
11	1.000	4.772	5.249	4.534
12	1.100	5.249	5.774	4.987
13	1.200	5.727	6.299	5.440
14	1.300	6.204	6.824	5.894
15	1.400	6.681	7.349	6.347
16	1.500	7.158	7.874	6.800
17	1.600	7.636	8.399	7.254
18	1.700	8.113	8.924	7.707
19	1.800	8.590	9.449	8.161
20	1.900	9.067	9.974	8.614
21	2.000	9.544	10.499	9.067
22	2.100	10.022	11.024	9.521
23	2.200	10.499	11.549	9.974
24	2.300	10.976	12.074	10.427
25	2.400	11.453	12.599	10.881
26	2.500	11.931	13.124	11.334
27	2.600	12.408	13.649	11.787
28	2.700	12.885	14.174	12.241
29	2.800	13.362	14.698	12.694
30	2.900	13.839	15.223	13.147
31	3.000	14.317	15.748	13.601
32	3.100	14.794	16.273	14.054
33	3.200	15.271	16.798	14.508
34	3.300	15.748	17.323	14.961
35	3.400	16.226	17.848	15.414
36	3.500	16.703	18.373	15.868
37	3.600	17.180	18.898	16.321
38	3.700	17.657	19.423	16.774
39	3.800	18.134	19.948	17.228
40	3.900	18.612	20.473	17.681
41	4.000	19.089	20.998	18.134
42	4.100	19.566	21.523	18.588
43	4.200	20.043	22.048	19.041
44	4.300	20.521	22.573	19.495
45	4.400	20.998	23.098	19.948
46	4.500	21.475	23.623	20.401
47	4.600	21.952	24.147	20.855
48	4.700	22.429	24.672	21.308
49	4.800	22.907	25.197	21.761
50	4.900	23.384	25.722	22.215
51	5.000	23.861	26.247	22.668
52	5.100	24.338	26.772	23.121
53	5.200	24.816	27.297	23.575

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 450.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.529	.581	.502
3	.200	1.057	1.163	1.004
4	.300	1.586	1.744	1.506
5	.400	2.114	2.325	2.008
6	.500	2.643	2.907	2.510
7	.600	3.171	3.488	3.012
8	.700	3.700	4.070	3.515
9	.800	4.228	4.651	4.017
10	.900	4.757	5.232	4.519
11	1.000	5.285	5.814	5.021
12	1.100	5.814	6.395	5.523
13	1.200	6.342	6.976	6.025
14	1.300	6.871	7.558	6.527
15	1.400	7.399	8.139	7.029
16	1.500	7.928	8.720	7.531
17	1.600	8.456	9.302	8.033
18	1.700	8.985	9.883	8.535
19	1.800	9.513	10.464	9.037
20	1.900	10.042	11.046	9.540
21	2.000	10.570	11.627	10.042
22	2.100	11.099	12.209	10.544
23	2.200	11.627	12.790	11.046
24	2.300	12.156	13.371	11.548
25	2.400	12.684	13.953	12.050
26	2.500	13.213	14.534	12.552
27	2.600	13.741	15.115	13.054
28	2.700	14.270	15.697	13.556
29	2.800	14.798	16.278	14.058
30	2.900	15.327	16.859	14.560
31	3.000	15.855	17.441	15.062
32	3.100	16.384	18.022	15.565
33	3.200	16.912	18.603	16.067
34	3.300	17.441	19.185	16.569
35	3.400	17.969	19.766	17.071
36	3.500	18.498	20.348	17.573
37	3.600	19.026	20.929	18.075
38	3.700	19.555	21.510	18.577
39	3.800	20.083	22.092	19.079
40	3.900	20.612	22.673	19.581
41	4.000	21.140	23.254	20.083
42	4.100	21.669	23.836	20.585
43	4.200	22.197	24.417	21.087
44	4.300	22.726	24.998	21.590
45	4.400	23.254	25.580	22.092
46	4.500	23.783	26.161	22.594
47	4.600	24.311	26.742	23.096
48	4.700	24.840	27.324	23.598
49	4.800	25.368	27.905	24.100
50	4.900	25.897	28.487	24.602
51	5.000	26.425	29.068	25.104
52	5.100	26.954	29.649	25.606
53	5.200	27.482	30.231	26.108

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 500.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.579	.637	.550
3	.200	1.158	1.274	1.100
4	.300	1.737	1.911	1.650
5	.400	2.316	2.548	2.200
6	.500	2.895	3.185	2.750
7	.600	3.474	3.822	3.301
8	.700	4.053	4.459	3.851
9	.800	4.632	5.096	4.401
10	.900	5.211	5.732	4.951
11	1.000	5.790	6.369	5.501
12	1.100	6.369	7.006	6.051
13	1.200	6.948	7.643	6.601
14	1.300	7.527	8.280	7.151
15	1.400	8.106	8.917	7.701
16	1.500	8.686	9.554	8.251
17	1.600	9.265	10.191	8.801
18	1.700	9.844	10.828	9.351
19	1.800	10.423	11.465	9.902
20	1.900	11.002	12.102	10.452
21	2.000	11.581	12.739	11.002
22	2.100	12.160	13.376	11.552
23	2.200	12.739	14.013	12.102
24	2.300	13.318	14.650	12.652
25	2.400	13.897	15.287	13.202
26	2.500	14.476	15.923	13.752
27	2.600	15.055	16.560	14.302
28	2.700	15.634	17.197	14.852
29	2.800	16.213	17.834	15.402
30	2.900	16.792	18.471	15.952
31	3.000	17.371	19.108	16.503
32	3.100	17.950	19.745	17.053
33	3.200	18.529	20.382	17.603
34	3.300	19.108	21.019	18.153
35	3.400	19.687	21.656	18.703
36	3.500	20.266	22.293	19.253
37	3.600	20.845	22.930	19.803
38	3.700	21.424	23.567	20.353
39	3.800	22.003	24.204	20.903
40	3.900	22.582	24.841	21.453
41	4.000	23.161	25.478	22.003
42	4.100	23.740	26.114	22.553
43	4.200	24.319	26.751	23.104
44	4.300	24.899	27.388	23.654
45	4.400	25.478	28.025	24.204
46	4.500	26.057	28.662	24.754
47	4.600	26.636	29.299	25.304
48	4.700	27.215	29.936	25.854
49	4.800	27.794	30.573	26.404
50	4.900	28.373	31.210	26.954
51	5.000	28.952	31.847	27.504
52	5.100	29.531	32.484	28.054
53	5.200	30.110	33.121	28.604

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 550.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.629	.692	.597
3	.200	1.258	1.384	1.195
4	.300	1.887	2.075	1.792
5	.400	2.516	2.767	2.390
6	.500	3.144	3.459	2.987
7	.600	3.773	4.151	3.585
8	.700	4.402	4.842	4.182
9	.800	5.031	5.534	4.780
10	.900	5.660	6.226	5.377
11	1.000	6.289	6.918	5.974
12	1.100	6.918	7.610	6.572
13	1.200	7.547	8.301	7.169
14	1.300	8.176	8.993	7.767
15	1.400	8.804	9.685	8.364
16	1.500	9.433	10.377	8.962
17	1.600	10.062	11.069	9.559
18	1.700	10.691	11.760	10.157
19	1.800	11.320	12.452	10.754
20	1.900	11.949	13.144	11.352
21	2.000	12.578	13.836	11.949
22	2.100	13.207	14.527	12.546
23	2.200	13.836	15.219	13.144
24	2.300	14.465	15.911	13.741
25	2.400	15.093	16.603	14.339
26	2.500	15.722	17.295	14.936
27	2.600	16.351	17.986	15.534
28	2.700	16.980	18.678	16.131
29	2.800	17.609	19.370	16.729
30	2.900	18.238	20.062	17.326
31	3.000	18.867	20.753	17.923
32	3.100	19.496	21.445	18.521
33	3.200	20.125	22.137	19.118
34	3.300	20.753	22.829	19.716
35	3.400	21.382	23.521	20.313
36	3.500	22.011	24.212	20.911
37	3.600	22.640	24.904	21.508
38	3.700	23.269	25.596	22.106
39	3.800	23.898	26.288	22.703
40	3.900	24.527	26.979	23.300
41	4.000	25.156	27.671	23.898
42	4.100	25.785	28.363	24.495
43	4.200	26.413	29.055	25.093
44	4.300	27.042	29.747	25.690
45	4.400	27.671	30.438	26.288
46	4.500	28.300	31.130	26.885
47	4.600	28.929	31.822	27.483
48	4.700	29.558	32.514	28.080
49	4.800	30.187	33.206	28.678
50	4.900	30.816	33.897	29.275
51	5.000	31.445	34.589	29.872
52	5.100	32.074	35.281	30.470
53	5.200	32.702	35.973	31.067

---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 600.000

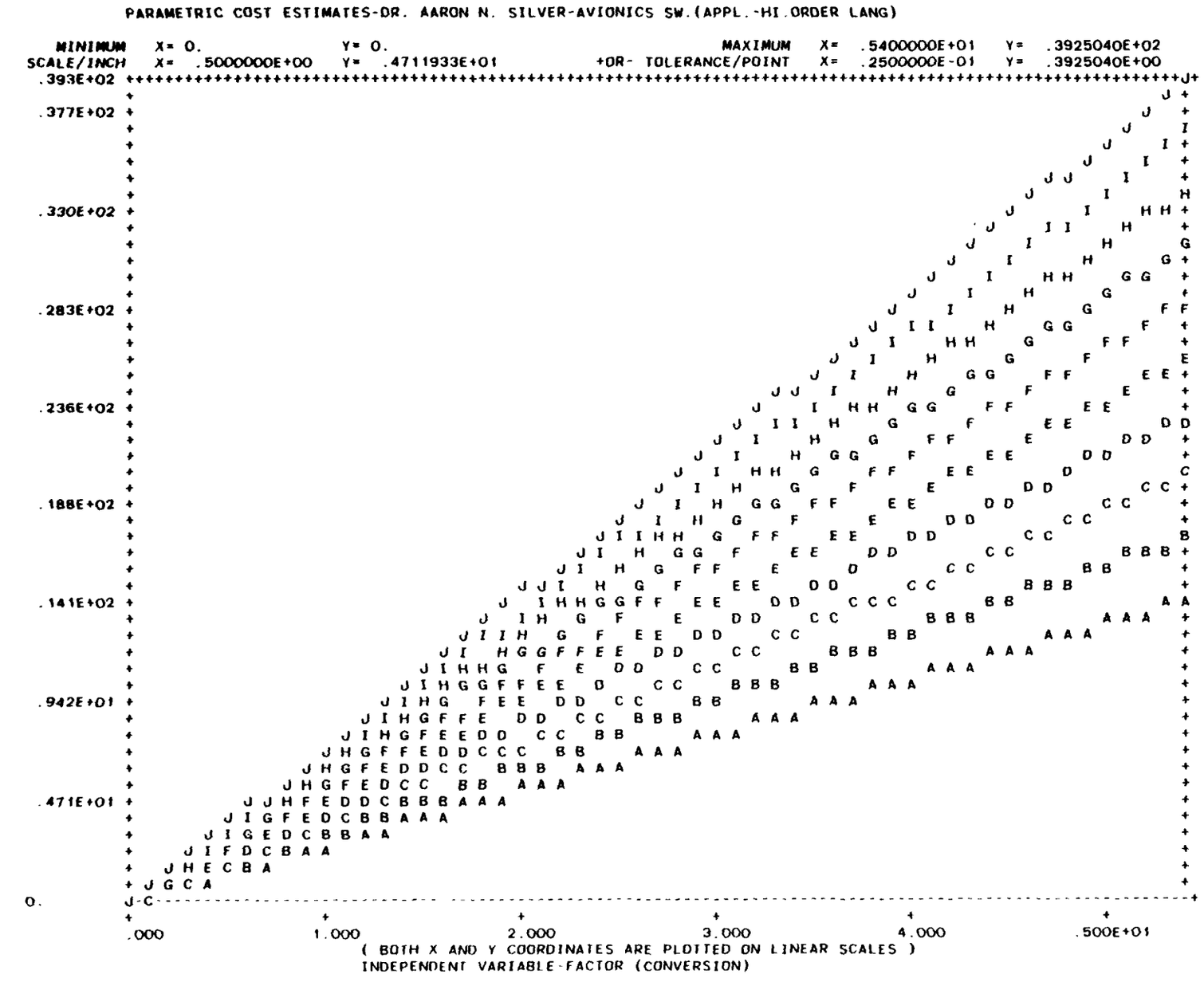
NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.678	.746	.644
3	.200	1.356	1.492	1.288
4	.300	2.034	2.238	1.933
5	.400	2.713	2.984	2.577
6	.500	3.391	3.730	3.221
7	.600	4.069	4.476	3.865
8	.700	4.747	5.222	4.510
9	.800	5.425	5.968	5.154
10	.900	6.103	6.714	5.798
11	1.000	6.781	7.460	6.442
12	1.100	7.460	8.206	7.087
13	1.200	8.138	8.952	7.731
14	1.300	8.816	9.698	8.375
15	1.400	9.494	10.443	9.019
16	1.500	10.172	11.189	9.664
17	1.600	10.850	11.935	10.308
18	1.700	11.529	12.681	10.952
19	1.800	12.207	13.427	11.596
20	1.900	12.885	14.173	12.241
21	2.000	13.563	14.919	12.885
22	2.100	14.241	15.665	13.529
23	2.200	14.919	16.411	14.173
24	2.300	15.597	17.157	14.818
25	2.400	16.276	17.903	15.462
26	2.500	16.954	18.649	16.106
27	2.600	17.632	19.395	16.750
28	2.700	18.310	20.141	17.395
29	2.800	18.988	20.887	18.039
30	2.900	19.666	21.633	18.683
31	3.000	20.344	22.379	19.327
32	3.100	21.023	23.125	19.971
33	3.200	21.701	23.871	20.616
34	3.300	22.379	24.617	21.260
35	3.400	23.057	25.363	21.904
36	3.500	23.735	26.109	22.548
37	3.600	24.413	26.855	23.193
38	3.700	25.091	27.601	23.837
39	3.800	25.770	28.347	24.481
40	3.900	26.448	29.093	25.125
41	4.000	27.126	29.839	25.770
42	4.100	27.804	30.585	26.414
43	4.200	28.482	31.330	27.058
44	4.300	29.160	32.076	27.702
45	4.400	29.839	32.822	28.347
46	4.500	30.517	33.568	28.991
47	4.600	31.195	34.314	29.635
48	4.700	31.873	35.060	30.279
49	4.800	32.551	35.806	30.924
50	4.900	33.229	36.552	31.568
51	5.000	33.907	37.298	32.212
52	5.100	34.586	38.044	32.856
53	5.200	35.264	38.790	33.501

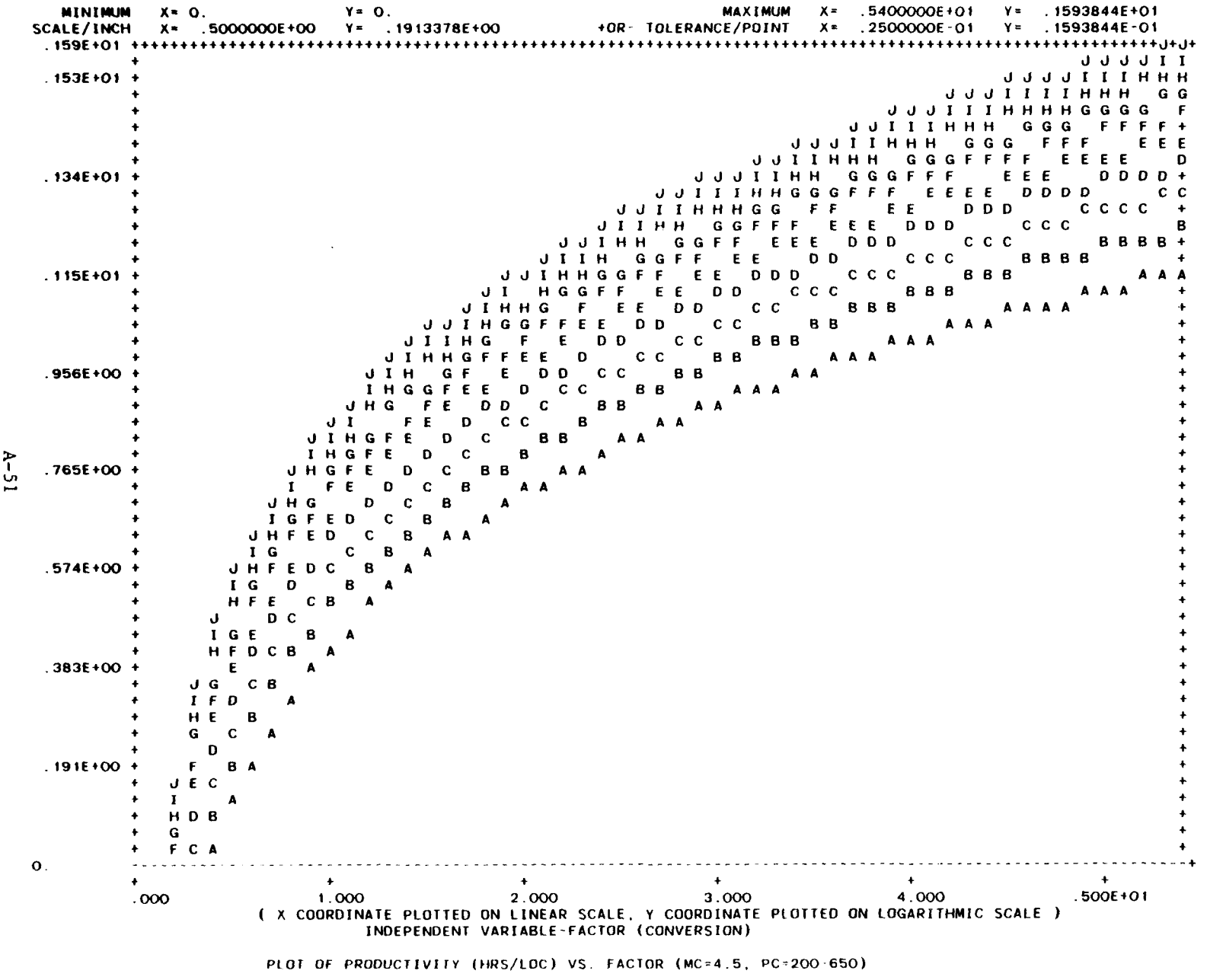
---------- PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)----------

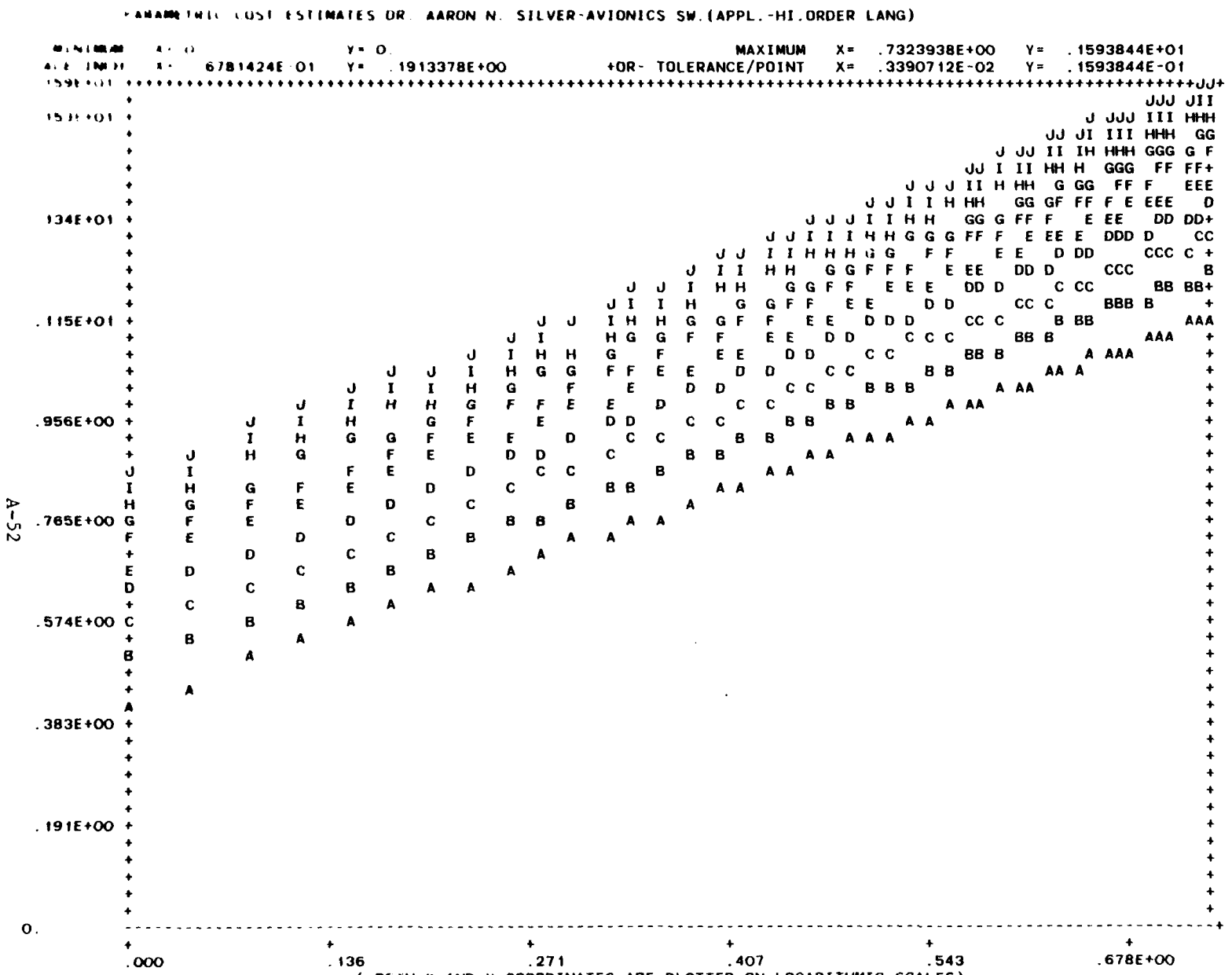
HIGH PERTURBATION VALUE= .1000
LOW PERTURBATION VALUE = .0500

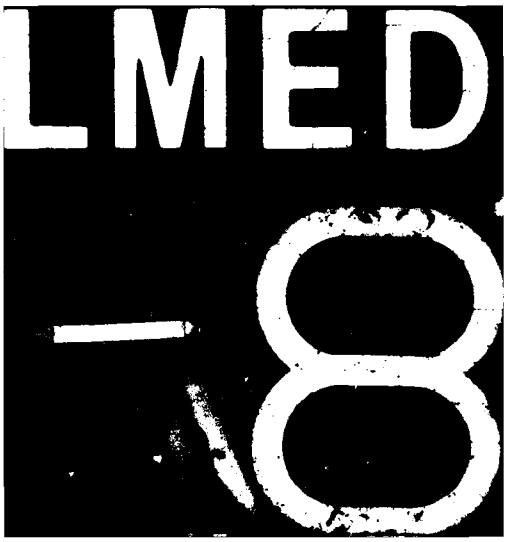
OUTER LOOP PARAMETER= 4.500
INNER LOOP PARAMETER= 650.000

NO.TERMS	IND.VAR.	DEP.VAR.	HI. VAL.	LO. VAL.
1	0.000	0.000	0.000	0.000
2	.100	.727	.800	.691
3	.200	1.454	1.599	1.381
4	.300	2.181	2.399	2.072
5	.400	2.907	3.198	2.762
6	.500	3.634	3.998	3.453
7	.600	4.361	4.797	4.143
8	.700	5.088	5.597	4.834
9	.800	5.815	6.396	5.524
10	.900	6.542	7.196	6.215
11	1.000	7.269	7.995	6.905
12	1.100	7.995	8.795	7.596
13	1.200	8.722	9.595	8.286
14	1.300	9.449	10.394	8.977
15	1.400	10.176	11.194	9.667
16	1.500	10.903	11.993	10.358
17	1.600	11.630	12.793	11.048
18	1.700	12.357	13.592	11.739
19	1.800	13.083	14.392	12.429
20	1.900	13.810	15.191	13.120
21	2.000	14.537	15.991	13.810
22	2.100	15.264	16.790	14.501
23	2.200	15.991	17.590	15.191
24	2.300	16.718	18.390	15.882
25	2.400	17.445	19.189	16.572
26	2.500	18.171	19.989	17.263
27	2.600	18.898	20.788	17.953
28	2.700	19.625	21.588	18.644
29	2.800	20.352	22.387	19.334
30	2.900	21.079	23.187	20.025
31	3.000	21.806	23.986	20.715
32	3.100	22.533	24.786	21.406
33	3.200	23.259	25.585	22.097
34	3.300	23.986	26.385	22.787
35	3.400	24.713	27.185	23.478
36	3.500	25.440	27.984	24.168
37	3.600	26.167	28.784	24.859
38	3.700	26.894	29.583	25.549
39	3.800	27.621	30.383	26.240
40	3.900	28.348	31.182	26.930
41	4.000	29.074	31.982	27.621
42	4.100	29.801	32.781	28.311
43	4.200	30.528	33.581	29.002
44	4.300	31.255	34.380	29.692
45	4.400	31.982	35.180	30.383
46	4.500	32.709	35.980	31.073
47	4.600	33.436	36.779	31.764
48	4.700	34.162	37.579	32.454
49	4.800	34.889	38.378	33.145
50	4.900	35.616	39.178	33.835
51	5.000	36.343	39.977	34.526
52	5.100	37.070	40.777	35.216
53	5.200	37.797	41.576	35.907


PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)
MINIMUM X= 0. Y= 0. MAXIMUM X= .5400000E+01 Y= .3925040E+02
SCALE/INCH X= .5000000E+00 Y= .4711933E+01 +OR- TOLERANCE/POINT X= .2500000E-01 Y= .3925040E+00
.393E+02
.377E+02
.330E+02
.283E+02
.236E+02
.188E+02
.141E+02
.942E+01
.471E+01
0.
.000
1.000
2.000
3.000
4.000
.500E+01
(BOTH X AND Y COORDINATES ARE PLOTTED ON LINEAR SCALES)
INDEPENDENT VARIABLE-FACTOR (CONVERSION)
PLOT OF PRODUCTIVITY (HRS/LOC) VS. FACTOR (MC=4.5, PC=200-650)


PARAMETRIC COST ESTIMATES-DR. AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)
MINIMUM X= 0. Y= 0. MAXIMUM X= .5400000E+01 Y= .1593844E+01
SCALE/INCH X= .5000000E+00 Y= .1913378E+00 +OR- TOLERANCE/POINT X= .2500000E-01 Y= .1593844E-01
.159E+01
.153E+01
.134E+01
.115E+01
.956E+00
.765E+00
.574E+00
.383E+00
.191E+00
0.
.000
1.000
2.000
3.000
4.000
.500E+01
(X COORDINATE PLOTTED ON LINEAR SCALE, Y COORDINATE PLOTTED ON LOGARITHMIC SCALE)
INDEPENDENT VARIABLE-FACTOR (CONVERSION)
PLOT OF PRODUCTIVITY (HRS/LOC) VS. FACTOR (MC=4.5, PC=200-650)


COST ESTIMATES OR AARON N. SILVER-AVIONICS SW.(APPL.-HI.ORDER LANG)
Y= 0.
MAXIMUM X= .7323938E+00 Y= .1593844E+01
X= 6781424E-01 Y= .1913378E+00 +OR- TOLERANCE/POINT X= .3390712E-02 Y= .1593844E-01
.134E+01
.115E+01
.956E+00
.765E+00
.574E+00
.383E+00
.191E+00
0.
.000
.136
.271
.407
.543
.678E+00
(BOTH X AND Y COORDINATES ARE PLOTTED ON LOGARITHMIC SCALES)
INDEPENDENT VARIABLE-FACTOR (CONVERSION)
PRODUCTIVITY (HRS/LOC) VS. FACTOR (MC=4.5, PC=200-650)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